

## Chapter 2

## ALTERNATIVES

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### 2.1 INTRODUCTION

NEPA and the Council on Environmental Quality (CEQ) implementing regulations direct the BLM to “study, develop, and describe appropriate alternatives to recommend courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources” and to “rigorously explore and objectively evaluate all reasonable alternatives.”

### 2.2 DEVELOPMENT OF ALTERNATIVES

This practical range of reasonable alternatives is formulated to address issues and concerns raised by the public and agencies during scoping. The alternatives represent other means (e.g., methods, processes, locations, times, sequences, etc.) of satisfying the stated purpose of and need for the federal action. Reasonable alternatives are defined by the CEQ as those that are technically, economically, and environmentally practical and feasible. NEPA also requires that a No Action Alternative be evaluated for comparison with the other alternatives analyzed in the EIS. If unreasonable alternatives or alternatives that do not meet the purpose and need are suggested, a detailed analysis of these alternatives is not required. However, the rationale for eliminating them from detailed analysis must be explained.

This chapter presents the No Action Alternative, three action alternatives, and two sub-alternatives that were considered in detail for this EIS:

- The No Action Alternative
- Alternative A, the BLM Preferred Alternative
- Alternative C
- Alternative H
- Sub-alternative F
- Sub-alternative G, the BLM Preferred Sub-alternative

The Proposed Action (Alternative A, the BLM Preferred Alternative), action alternatives (Alternatives C and H), sub-alternatives (Sub-alternatives F and G [the BLM Preferred Sub-alternative]) (Figures 2-1 through 2-5), and No Action Alternative are analyzed in detail. Other alternatives that were initially considered but subsequently eliminated from detailed analysis are also described in this chapter. Compliance with best management practices (BMPs) and mitigation measures will be mandatory for each of the action alternatives.

Also considered during the development of alternatives was the rationale used in the regional transportation planning process to identify the need for a six-lane Parkway. Included in the regional transportation planning process is the SVPP, which is discussed in Section 2.8.2. A critical component of transportation planning is preparing for anticipated growth and providing transportation connections that encourage efficient and sustainable connections. As further described in Chapter 1 and Appendix B, Reasonably Foreseeable Development, the Sonoran Valley Parkway (the Alternative A alignment) is currently referenced as part of the regional transportation network as a Parkway providing a connection through the city of Goodyear’s annexed SVPA, an area expected to experience major growth within the next two decades (MAG 2010). Using projections for 2035, MAG provided population forecasts for Goodyear’s resident population, showing an increase from 65,178 in 2010 to 358,565 in 2035, while the SVPA population would increase from approximately 100 in 2010 to 60,629 in 2035 (MAG 2009).

According to MAG studies (e.g., *Hidden Valley Transportation Framework Study*, MAG 2009) for population and economic growth, the build-out of this area is expected within the next 40 to 60 years (when the General Plan is fully implemented) and is estimated to grow to more than 200,000 residents and 57,000 jobs within the SVPA alone. The city of Goodyear is also expected to grow to 511,000 residents at build-out. Thus, the need for phased construction of a six-lane Parkway that will accommodate traffic volumes resulting from exponential growth in the area was recognized, and the Parkway was included in the regional transportation planning. Additionally, the development of alternatives for this EIS included the consideration of phased construction in two-lane increments (two, four, and six lanes).

The Proposed Action (Alternative A, the BLM Preferred Alternative) represents the alignment originally requested by the project proponent in the February 2008 ROW Standard Form 299 (SF 299) application. Alternative C was developed to avoid as much federal land as possible. Alternative H was developed to maximize access to private lands and be located away from SDNM. All three alternatives would include the same construction methods and techniques, with the primary difference being the proposed Parkway length and route. In addition, two sub-alternatives were developed for the alignment at the south end of the SVPP. Sub-alternative F was developed to minimize surface disturbance and to confine the south end of the SVPP to the existing Komatke/Gas Line Road alignment. Sub-alternative G was developed to avoid cultural and historic resources, as well as to locate the southern terminus of the SVPP farther west of Mobile.

Several other alternatives were identified and considered but were eliminated from detailed analysis. These alternatives are described in Section 2.4, which provides the rationale for eliminating them from detailed analysis.

Under the No Action Alternative, the City's ROW application to construct the Sonoran Valley Parkway would not be approved. The SVPP would not be developed, and existing land uses in the project area would continue in their current condition.

## 2.3 FEATURES AND CONSIDERATIONS IN DEVELOPING ALTERNATIVES

As described in Chapter 1, the City applied for the ROW in February 2008, submitting a POD, along with the SF 299 application, as required by BLM (43 CFR 2800). Because of the scope of the Proposed Action and the potential for environmental impacts, the BLM determined the project to require an EIS, which requires the proponent to provide the BLM with multiple alternatives and analysis on which to base its decision. The formulation of the alternatives was guided by the following: the purpose of and need for the SVPP; land use objectives of the Lower Sonoran RMP; public and agency scoping; the need to comply with federal, state, and local laws, regulations, and policies; technical and practical feasibility; economic and practical feasibility; and environmental reasonableness (resource considerations).

During the process of developing alternatives, the BLM reviewed a reasonable range of potential alternatives to the Proposed Action. A variety of factors was examined during the development of the alternatives for this EIS. Consideration was given to avoidance and/or minimization of effects on water (surface water and groundwater), riparian zones, vegetation, wildlife, special-status species, range/livestock, cultural resources, public safety, and visual resources. Section 2.2.2 discusses the considerations made by the BLM during alternatives development and screening.

Figure 2-1 illustrates the Proposed Action (Alternative A, the BLM Preferred Alternative), along with the action alternatives and sub-alternatives to the Proposed Action. In addition, Figures 2-2 through 2-5 show the individual alignments of the Proposed Action, action alternatives, and sub-alternatives.

## 2.4 APPLICABLE LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Under all action alternatives, the City would comply with all applicable laws, ordinances, regulations, and standards (LORS) and would obtain and meet the requirements of all needed permits discussed in Sections 1.5 and 1.6 of Chapter 1. Because LORS are generally specific to a resource, most will be presented in Chapter 3, which describes the current environment and its management. Where specific permit requirements would affect the environmental consequences of a particular resource, those requirements are discussed in Chapter 4.

All action alternatives and sub-alternatives would incorporate applicable BMPs and standard operating procedures (SOPs) from the Lower Sonoran RMP (BLM 2012a). BMPs are land and resource management techniques determined to be the most effective and practical means of maximizing beneficial results and minimizing conflicts and negative environmental impacts from management actions. SOPs are procedures carried out daily during proposal implementation that are based on laws, regulations, EOs, BLM planning manuals, policies, instruction memoranda, and applicable planning documents. These are described in Table 2-1. These stipulations would be included in the conditions of approval for any ROW approved by BLM and would be binding in the event that the Parkway were transferred to or operated by another entity.

**Table 2-1. Lower Sonoran RMP Best Management Practices and Standard Operating Procedures**

<b>Cultural Resources</b>	<p>SOP: Ensure that all proposed undertakings and authorizations are reviewed and conducted in compliance with Section 106 of the NHPA, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act.</p> <p>SOP: Comply with Section 106 of the NHPA:</p> <ol style="list-style-type: none"> <li>1. All undertakings will be subject to thorough cultural resources inventory in order to identify all cultural resources that lie within the APE.</li> <li>2. All identified cultural resources within the APE will be evaluated for NRHP eligibility.</li> <li>3. All undertakings shall be scrutinized for ways to design or redesign proposed projects to avoid cultural resources.</li> </ol> <p>SOP: Mitigate those cultural resources within the APE that have characteristics that would make them eligible for the NRHP using appropriate treatment strategies, in order to reduce the intensity of the impacts to the lowest level possible.</p> <p>SOP: Complete Class II (sample) and Class III (intensive) field inventories to identify cultural resources and evaluate the conditions of sites, in accordance with Section 110 of the NHPA. Use the information obtained through these surveys to allocate sites to proper use categories, develop protection measures, and integrate survey results into research designs and interpretation efforts. Determine priorities for inventory based on resource use and area's or site's protection priority.</p>
<b>Paleontological Resources</b>	<p>SOP: For all authorized surface-disturbing activities, conduct inventories on a case-by-case basis, as deemed necessary by the authorized officer, for each proposed surface-disturbing activity to ensure maintenance or integrity of paleontological values.</p>
<b>Soil Resources</b>	<p>BMP: BMPs would be applied to vegetative or surface disturbances to limit soil loss and erosion and protect water quality.</p> <p>BMP: Minimize disturbance to surface resources when constructing new developments or reconstructing existing facilities. Mitigation plans would be developed, disturbed surfaces would be restored, and soils would be stabilized in accordance with restoration objectives.</p>
<b>Visual Resources</b>	<p>SOP: Scenic Quality: Employ measures to mitigate potential visual impacts, such as the use of natural materials, screening, painting, project design, location sighting, and restoration.</p>
<b>Wildlife Resources</b>	<p>BMP: Construct fences to comply with applicable wildlife fence standards (Fences – BLM Manual Handbook H-1741-1). Existing fences that impede big-game movement or that otherwise conflict with wildlife may be modified to comply with applicable wildlife fence standards on a case-by-case basis.</p>

**Table 2-1. Lower Sonoran RMP Best Management Practices and Standard Operating Procedures (Continued)**

<b>Lands and Realty</b>	SOP: Collocate transportation routes, whether interstate, intrastate, or local, with utilities in designated corridors to the maximum degree possible to minimize impacts to public lands.
<b>Livestock Grazing</b>	SOP: Compensate for a loss of range improvements in accordance with 43 CFR 4120.3-6. SOP: Construct and maintain fences following guidance provided in BLM Handbook 1741-1, Fencing.
<b>Travel Management</b>	BMP: Emphasize the use of existing roads (through continued use or reconstruction) to minimize new road construction.
<b>Special Designations</b>	SOP: Areas of Critical Environmental Concern: Design all authorized uses with mitigation to minimize surface disturbance. SOP: Areas of Critical Environmental Concern: Design fences to reduce adverse impacts to wildlife movement using specifications in BLM Manual 1747, local directives, or subsequent guidance. Existing fences in wildlife habitat that do not meet BLM specifications would be modified appropriately when scheduled for replacement maintenance.
<b>Socioeconomics</b>	SOP: Evaluate all actions for hazardous materials, waste minimization, and pollution prevention. Appropriate mitigation will be identified for surface-disturbing and disruptive activities associated with all types of hazardous materials and waste management and all types of fire management.

Source: Lower Sonoran RMP (BLM 2012a).

## 2.5 CRITERIA FOR SCREENING THE ALTERNATIVES

After the initial identification and formulation of alternatives, criteria were developed by the interdisciplinary team to screen the alternatives considered in the Draft EIS for their ability to meet or not meet established criteria. Comparing alternatives with the screening criteria is the process used to reduce the number of alternatives subject to detailed environmental evaluation in the EIS. As described in Section 2.2, screening criteria include the following:

- Consistency with the purpose and need (Chapter 1)
- Ability to meet the land use objectives of the Lower Sonoran RMP
- Ability to respond to public and agency scoping
- Ability to comply with federal, state, and local laws, regulations, and policies
- Ability to be technically and practically feasible
- Ability to be economically and practically feasible
- Environmental reasonableness (resource considerations)

### 2.5.1 Consistent with Purpose and Need

The first screening criteria for the alternative's ability to meet the purpose and need is used to determine whether the project would or would not satisfy the purpose and underlying needs driving the alternative. The BLM's purpose of and need for this action is to respond to the City's ROW application under Title V of the FLPMA (43 USC 1701 *et seq.*) for a ROW grant to construct, operate, and maintain a proposed two- to six-lane Parkway in compliance with the FLPMA, BLM ROW regulations, and other applicable federal laws. The BLM will decide whether to approve, approve with modification, or deny issuance of a ROW grant to the City for the Proposed Action, action alternatives, or sub-alternatives.

Specifically, the BLM's purposes in considering the project are as follows:

- To process ROW application AZA-34177 submitted by the City to construct a new, permanent, two- to six-lane, public road (Parkway) for year-round use from Goodyear proper to the annexed portions of southern Goodyear (SR 238 near Mobile).
- To meet public needs for use authorizations, such as ROWs, permits, leases, and easements, while avoiding or minimizing adverse impacts to other resource values and locating the uses in conformance with land use plans.

The BLM's need in considering the Proposed Action is to comply with Title V of FLPMA (43 USC 1761–1771). The BLM is authorized to grant ROWs for roads and trails and “such other necessary transportation or other systems or facilities which are in the public interest and which require rights-of-way over, upon, under, or through such lands.” The action alternative must satisfy the above in order to meet the purpose and need. Therefore, the Proposed Action, action alternatives, and sub-alternatives would meet the purpose and need.

## **2.5.2 Ability to Meet the Land Use Objectives of the Lower Sonoran RMP**

The second screening criterion is used to determine whether the alternative would meet the land use objectives of the Lower Sonoran RMP. The Lower Sonoran RMP includes objectives for LUAs, which includes the construction of roads. According to the Lower Sonoran RMP, the areas in which the Proposed Action, action alternatives, and sub-alternatives would be located if implemented are not identified as LUA exclusion or avoidance areas. Therefore, the Proposed Action, action alternatives, and sub-alternatives would meet the land use objectives of the Lower Sonoran RMP.

## **2.5.3 Ability to Respond to Identified Public and Agency Scoping**

Formal scoping began on April 2, 2008, with the publication of the NOI in the *Federal Register*, followed by Goodyear newsletters, along with postcards mailed to BLM stakeholders. Three formal scoping meetings were held in late May, and the public was encouraged to submit their comments and concerns (via email, comment forms, or mailed letters) to the BLM. Seventeen comments were submitted. The resource issues identified after scoping included air quality, cultural resources, grazing, hazardous materials, lands and realty, noise, public health and safety, recreation, riparian areas, socioeconomics, special designations, travel management, vegetation, visual resources, wildlife, and water resources. Each of these identified resource issues was used in the screening of alternatives (discussed below in Section 2.2.3), and the potential effects on the resource issues are the subject of Chapter 4, Environmental Consequences. Therefore, the Proposed Action, action alternatives, and sub-alternatives respond to public and agency concerns/issues identified during scoping.

## **2.5.4 Ability to Comply with Federal, State, and Local Laws, Regulations, and Policies**

As discussed in Sections 1.5 and 1.6 of Chapter 1, the Proposed Action, action alternatives, and sub-alternatives would need to comply with existing federal, state, and local laws, regulations, and policies. No alternative that would be outside existing federal, state, and local laws, regulations, and policies was proposed. Therefore, the Proposed Action, action alternatives, and sub-alternatives meet the need to comply with federal, state, and local laws, regulations, and policies.

## 2.5.5 Ability to Be Technically and Practically Feasible

The screening criteria for the ability of the Proposed Action, action alternatives, and sub-alternatives to be constructed, operated, and maintained in a technical and practical manner are used to determine whether the action alternative can be realistically and technically realized in today's current market using today's current construction technology and equipment. The Proposed Action, action alternatives, and sub-alternatives could all be constructed in a technically and practical manner in today's market using the current construction technologies. There are no obstacles in Rainbow Valley that would hinder technical and practical construction, operation, and maintenance. Connections to existing roads exist at the north and southern termini for the Proposed Action, action alternatives, and sub-alternatives. Therefore, the Proposed Action, action alternatives, and sub-alternatives are all technically and practically feasible.

## 2.5.6 Ability to Be Economically and Practically Feasible

The screening criteria for the ability of the Proposed Action, action alternatives, and sub-alternatives to be constructed, operated, and maintained in an economic and practical manner are used to determine whether the action alternative can be financed for the life of the project, which would be in perpetuity. The City has constructed numerous roadways, including major arterial streets, and continues to upgrade its existing roadways to meet federal, state, and local roadway standards as needed. As specified in the POD, the City has the finances to construct, operate, and maintain the Proposed Action in an economical and practical manner. Therefore, the Proposed Action, action alternatives, and sub-alternatives are all economically and practically feasible.

## 2.5.7 Environmentally Reasonable (Resource Considerations)

The ability for the Proposed Action, action alternatives, and sub-alternatives to be environmentally reasonable is the subject of Chapter 4 of this EIS. No elements of the Proposed Action, action alternatives, and sub-alternatives were developed with intentional environmental impacts to resources. The ability for the Proposed Action, action alternatives, and sub-alternatives to be environmentally reasonable would be measured according to the impact analysis. In many cases, the environmental reasonableness will be determined by the application of BMPs, management objectives, and mitigation measures. Therefore, the Proposed Action, action alternatives, and sub-alternatives analyzed in detail would be environmentally reasonable, subject to mitigation, as specified in Chapter 4.

## 2.6 ALTERNATIVE SCREENING

The BLM NEPA Handbook (Handbook H-1790-1 [BLM 2008a]) indicates that the agency may eliminate an action alternative from detailed analysis for any of the following reasons:

- It is ineffective (e.g., would not respond to the purpose and need).
- It is technically or economically infeasible, considering whether implementation of the alternative is likely, given past and current practice and technology. This does not require cost-benefit analysis or speculation about an applicant's costs and profits.
- It is inconsistent with the basic policy objectives for the management of the area.
- Its implementation is remote or speculative.
- It is substantially similar in design to an alternative that is analyzed.
- It would have substantially similar effects to those of an alternative that is analyzed.

The following matrix of screening results (Table 2-2) provides a summary and rationale of the alternatives for the SVPP and the alternative's ability to 1) meet the above purpose and need;<sup>2</sup> 2) respond to public and agency scoping; 3) be constructed in a technically and feasible manner; 4) be constructed in an economically practical and feasible manner; and 5) meet the previous four criteria in an environmentally reasonable manner.

Table 2-2 describes the Proposed Action (the BLM Preferred Alternative), action alternatives, and sub-alternatives that are analyzed in detail (Alternatives A, C, and H and Sub-alternatives F and G) and their ability to meet the criteria described above.

## 2.7 ALTERNATIVES CONSIDERED FOR DETAILED ANALYSIS

In this section, the alternatives that met the screening criteria and that were carried forward for environmental analysis are described. The No Action Alternative and Alternatives A, C, and H and Sub-alternatives F and G are considered for detailed analysis.

### 2.7.1 No Action

Under the No Action Alternative, the City's ROW application to develop the Sonoran Valley Parkway would not be approved. The SVPP would not be developed within BLM lands, and existing land uses in the project area would continue in their current condition. The No Action Alternative forms the baseline against which the potential impacts of the action alternatives are compared. Thus, it includes current actions and activities in the project area. No additional actions are assumed to occur in the absence of approval of any of the action alternatives.

A public road for the purposes of meeting traffic demand resulting from the expected development within the City's new MPA annexation would not be constructed under the No Action Alternative. The existing EPNG pipeline road would continue being used as it is currently.

The SVPP is included in regional transportation planning goals to provide a transportation connection within an area identified for major growth within the next 30 to 60 years by MAG. A No Action Alternative would be in conflict with the regional transportation recommendations stated in the MAG Regional Transportation Plan (2010), which provides for a Parkway corridor to meet travel demand from southern Goodyear to the Sonoran Valley annexed lands near SR 238. A No Action Alternative would not fulfill recommendations for regional transportation planning based on projections that indicate substantial population and employment growth by 2035 and beyond. The projected increase in traffic volumes that would occur on area roadways such as SR 85 and SR 238 without the project, which serve as the only other viable options to connect southern Goodyear to the SVPA and Mobile community, would result in reduced operating conditions and travel times, forcing drivers to use alternate routes, including an unpaved EPNG pipeline maintenance road that is in very poor condition and is dangerous for drivers. Under the No Action Alternative, traffic volumes on existing roads would continue to increase. Projected growth would occur, and an alternative to the current transportation network would not be available to populations. Thus, access for emergency services, residents, and commuters would remain unchanged, limited, and unimproved.

<sup>2</sup> Includes the ability to meet the land use objectives of the Lower Sonoran/SDNM RMP and the ability to comply with federal, state, and local laws, regulations, and policies.

**Table 2-2. Screening Results: Alternatives Analyzed in Detail**

Alternative Name	Screening Criteria for Alternatives			
	Consistent with Purpose and Need*	Responds to Public and Agency Scoping	Technically Practical and Feasible	Economically Practical and Feasible
<b>No Action</b>	No, because the No Action Alternative would not enable the City to construct a Parkway on BLM lands as applied under AZA-34177.	No, because the No Action Alternative would not consider environmental issues and concerns raised during public and agency scoping.	Yes, because no construction would take place.	Yes, because no construction would take place and environmental resource considerations would remain in their current condition.
<b>Alternative A</b> (the BLM Preferred Alternative)	Yes, because this alternative would enable the City to construct a Parkway as applied under AZA-34177; it would be in conformance with the purpose of the utility corridors and would be in conformance with the Lower Sonoran RMP.	Yes, because this alternative would consider the issues that were identified during scoping.	<p>Yes, because this alternative would mostly be located on, adjacent to, or near existing roadways and would not involve topographic or engineering constraints.</p> <p>Technical Considerations:</p> <ul style="list-style-type: none"> <li>• Would require new ground disturbance</li> <li>• Does not cross Waterman Wash</li> <li>• Relatively straight alignment</li> <li>• Would require a more substantial barrier than just 4-strand barbed wire along SDNM boundary</li> <li>• Coordination between the City, Transwestern, and EPNG required</li> <li>• Would provide an improved access road for EPNG maintenance purposes</li> </ul>	<p>Yes, because this alternative uses existing roadways or primitive roads.</p> <p>Resource Considerations:</p> <ul style="list-style-type: none"> <li>• Within existing corridor</li> <li>• Reduces surface disturbance</li> <li>• Decreases visual contrast</li> <li>• Reduces wildlife habitat and grazing allotment fragmentation</li> <li>• Reduced curves and turns</li> <li>• Provides better management of travel and access into SDNM</li> <li>• Does not cross Waterman Wash</li> <li>• Lessens manageability of the BLM public land north of SDNM (potential increased illegal dumping, off-road driving)</li> <li>• Higher potential for increased noise impacts on northern areas of SDNM</li> <li>• Would intersect the designated wildlife linkage at its narrowest point</li> <li>• Divides the Beloit allotment at the SDNM boundary and creates access-to-range improvements and water issues.</li> <li>• Would intersect with the greatest amount of Category I Sonoran desert tortoise habitat of all action alternatives</li> </ul>



**Table 2-2. Screening Results: Alternatives Analyzed in Detail (Continued)**

Alternative Name	Screening Criteria for Alternatives				Environmentally Reasonable (Resource Considerations)
	Consistent with Purpose and Need*	Responds to Public and Agency Scoping	Technically Practical and Feasible	Economically Practical and Feasible	
<b>Alternative C</b>	Yes, because this alternative would enable the City to construct a Parkway as applied under AZA-34177; it would be in conformance with the purpose of the utility corridors and would be in conformance with the Lower Sonoran RMP.	Yes, because this alternative would consider the issues that were identified during scoping.	Yes, because this alternative would mostly be located on, adjacent to, or near existing roadways and would not involve topographic or engineering constraints.  Technical Considerations: <ul style="list-style-type: none"> <li>• Would require new ground disturbance</li> <li>• Near Waterman Wash</li> <li>• Approximately six "curves and/or turns"</li> </ul>	Yes, because this alternative would have less environmental, topographic, or engineering constraint impacts than Alternative H.	Yes, because this alternative would use mostly existing roadways. However, this alternative would parallel Waterman Wash within 0.5 mile through the wildlife linkage area on BLM lands.  Resource Considerations: <ul style="list-style-type: none"> <li>• Includes the greatest amount of ASLD State Trust land and private land</li> <li>• Avoids SDNM and gas pipeline corridor</li> <li>• Takes advantage of existing road ROWs and reduces new surface disturbance</li> <li>• Includes less acreage of BLM public lands than the Proposed Action</li> <li>• Does not cross Waterman Wash</li> <li>• Divides the Beloit allotment into small pastures and creates access-to-livestock-waters issues</li> <li>• Intersects 3 miles of wildlife linkage</li> </ul>

**Table 2-2.** Screening Results: Alternatives Analyzed in Detail (Continued)

Alternative Name	Screening Criteria for Alternatives			
	Consistent with Purpose and Need*	Responds to Public and Agency Scoping	Technically Practical and Feasible	Economically Practical and Feasible
<b>Alternative H</b>	Yes, because this alternative would enable the City to construct a Parkway as applied under AZA-34177; it would be in conformance with the purposes of the multiple-use principles of BLM lands and would be in conformance with the Lower Sonoran RMP.	Yes, because this alternative would consider the issues that were identified during scoping.	Yes, because this alternative would be located on, adjacent to, or near existing roadways and would not involve topographic or engineering constraints.  Technical Considerations: <ul style="list-style-type: none"> <li>• Approximately five "curves and/or turns"</li> <li>• Crosses Waterman Wash at two locations and tributaries in numerous locations</li> </ul>	Yes, because this alternative would use mostly existing roadways.  Resource Considerations: <ul style="list-style-type: none"> <li>• Uses existing ROWs</li> <li>• Since this route is on existing roads, provides the fewest impacts to vegetation</li> <li>• Includes less acreage of BLM public lands than the Proposed Action</li> <li>• Provides the best access to BLM lands that are planned for disposal</li> <li>• Decreased impacts to high-quality Sonoran desert tortoise habitat, compared with Alternative A</li> <li>• Preserves continuity of Conley allotment due to the alignment following existing roads, but divides the Beloit allotment into smaller pastures that would be separated by the proposed Parkway</li> </ul>

**Table 2-2. Screening Results: Alternatives Analyzed in Detail (Continued)**

Alternative Name	Screening Criteria for Alternatives			
	Consistent with Purpose and Need*	Responds to Public and Agency Scoping	Technically Practical and Feasible	Economically Practical and Feasible
<b>Sub-alternative F</b>	Yes, because this alternative would enable the City to construct a Parkway as applied under AZA-34177; it would be in conformance with the purpose of the utility corridors and would be in conformance with the Lower Sonoran RMP.	Yes, because this alternative would consider the issues that were identified during scoping.	Yes, because this alternative would mostly be located on, adjacent to, or near existing roadways and would not involve topographic or engineering constraints.  Technical Considerations: <ul style="list-style-type: none"> <li>• Would require more surface disturbance than the southern alignment common to Alternatives A, C, and H and Sub-alternative G</li> <li>• Exact location of this alternative will need to be field examined to determine how to avoid the greatest number of cultural sites</li> </ul>	Yes, because this alternative would have limited environmental, topographic, or engineering constraint impacts.  Resource Considerations: <ul style="list-style-type: none"> <li>• Could become a sub-alternative of all action alternatives, as it represents a complete realignment of the southernmost alignment only</li> <li>• Would avoid the known homestead cultural sites</li> <li>• Follows an existing road</li> <li>• Needs access to the Butterfield Overland Stage Route and Juan Bautista de Anza NHT; mitigation should include a pull-off with interpretative signs and parking</li> </ul>

**Table 2-2. Screening Results: Alternatives Analyzed in Detail (Continued)**

Alternative Name	Screening Criteria for Alternatives			
	Consistent with Purpose and Need*	Responds to Public and Agency Scoping	Technically Practical and Feasible	Economically Practical and Feasible
<b>Sub-alternative G</b> (the BLM Preferred Sub-alternative)	Yes, because this alternative would enable the City to construct a Parkway as applied under AZA-34177; it would be in conformance with the purpose of the utility corridors and would be in conformance with the Lower Sonoran RMP.	Yes, because this alternative would consider the issues that were identified during scoping.	Yes, because this alternative would not involve topographic or engineering constraints. Technical Considerations: <ul style="list-style-type: none"> <li>• Would require the same surface disturbance as the southern alignment common to Alternatives A, C, and H and less than Sub-alternative F</li> <li>• Exact location of this alternative will need to be field examined to determine how to avoid the greatest number of cultural sites</li> </ul>	Yes, because this alternative would avoid most sensitive cultural resources. Resource Considerations: <ul style="list-style-type: none"> <li>• Could become a sub-alternative of all action alternatives, as it represents a complete realignment of the southernmost alignment only</li> <li>• Would avoid the known homestead cultural site</li> <li>• Needs access to the Butterfield Overland Stage Route and Juan Bautista de Anza NHT; mitigation should include a pull-off with interpretative signs and parking</li> </ul>
<b>Common to All Action Alternatives</b>				
<ul style="list-style-type: none"> <li>• Designed in accordance with Arizona Parkway specifications (Maricopa County Department of Transportation 2010).</li> <li>• 4-strand barbed wire (wildlife standard fence) along the entire length in accordance with BLM and AGFD specifications.</li> <li>• At the south end of the alignment (for all action alternatives), would require access to the Butterfield Overland Stage Route and Juan Bautista de Anza NHT in the form of a pull-off that provides parking spaces and interpretative signs that lead to a footpath for each trail.</li> <li>• Everywhere there is a designated BLM road, a pull-off with gate or cattle guard would be needed. (An "apron," in accordance with MAG standards.)</li> <li>• All alternatives create impacts to range/livestock that will need to be addressed.</li> <li>• All alternatives that affect Category I Sonoran desert tortoise habitat will need to provide a 5:1 compensation for habitat loss (BLM 1991).</li> <li>• Facilitate wildlife movement within designated wildlife linkage corridors.</li> <li>• Provide opportunity for land purchase/disposal for private inholdings within the boundary of SDNM.</li> <li>• The development of a treatment plan will lay out mitigation strategies for any/each cultural site impacted since the south end of the Parkway (Alternatives A, C, and H) will all likely impact cultural sites and the Butterfield Overland Stage Route and Juan Bautista de Anza NHT.</li> </ul>				

\* Includes the ability to meet the land use objectives of the Lower Sonoran RMP and the ability to comply with federal, state, and local laws, regulations, and policies.

## 2.7.2 Alternative A, the BLM Preferred Alternative

Alternative A was developed by the proponent and represents the Proposed Action. BLM has identified Alternative A as the BLM Preferred Alternative.

The CEQ regulations at 40 CFR 1502.14(e) and Department of Interior regulations at 43 CFR 46.425 direct that an EIS “identify the agency’s preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.” According to CEQ, the agency’s preferred alternative “is the alternative that the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors” (CEQ 1981). Alternative A has been identified as the BLM Preferred Alternative because this alternative represents the greatest combination of resource protection measures that would fulfill the BLM’s mission and responsibilities. It is anticipated the Parkway, if constructed, would provide BLM with a better management approach and enhanced opportunities for managing vehicle entry into the SDNM from innumerable, unplanned primitive roads and wash vehicle route networks. The proposed Parkway would straddle and break up these existing ad-hoc route networks through design and fencing. Constrained access through well-administered entry points would provide BLM the opportunity to contact users with appropriate messaging and OHV user information, more effectively protect monument objects, and assist effective Park Ranger and Law Enforcement Ranger enforcement.

Alternative A represents the action alternative with the straightest alignment. Alternative A would total 15.7 miles; it would start at Riggs Road at the north end of the project area, go south for approximately 2.5 miles along Rainbow Valley Road, then go southeast for 10.4 miles, roughly paralleling the EPNG pipeline road. This alignment would parallel the northeastern boundary of SDNM (approximately 800 feet separates the proposed Alternative A ROW from the northeastern boundary of SDNM). The alternative would be located within an existing utility corridor (the EPNG multi-use utility corridor), identified in the Lower Sonoran RMP. Alternative A ends at SR 238. There are two sub-alternatives, described below, for the last approximately 2 miles of Alternative A.

Alternative A is located in Sections 34 and 35, Township 2 South, Range 2 West; Sections 2, 3, 10, 11, 13, and 14, Township 3 South, Range 2 West; Sections 18–20, 28, 29, 33, and 34, Township 3 South, Range 1 West; Sections 2, 3, 11, and 12, Township 4 South, Range 1 West; and Sections 7, 18–20, and 29, Township 4 South, Range 1 East (see Figure 2-2).

Alternative A would cross approximately 9.5 miles of BLM-administered land, 1.6 miles of ASLD land, and 4.7 miles of private land. A permanent 200-foot-wide ROW, plus an additional 25-foot-wide grading and drainage easement, is requested on both sides of the ROW centerline, for a total width of 250 feet. A grant for identical ROW and drainage easements would be requested from ASLD for those portions of the Parkway that would cross State Trust land. Private lands necessary for this project’s ROW generally would be obtained as fee purchases and easements by the City. Public input generated from the scoping meeting(s) indicated support for Alternative A, which would provide the most direct and efficient connection to the newly annexed Sonoran Valley area while providing the greatest distance from Waterman Wash. In addition, comments emphasized the importance of an efficient connection, which is essential for emergency services.

### 2.7.2.1 Parkway Design

The Parkway concept and design discussed in long-range transportation plans for the region were identified to meet the need for non-freeway restricted access facilities that can support significantly greater travel capacity than major urban arterial roadways. Alternative A follows the alignment identified

within the MAG and ADOT long-range transportation plans and would be compatible with the Maricopa County Department of Transportation (MCDOT) Parkway design recommendations.

Characteristics of the Alternative A alignment include the following:

- Allows posted speeds of up to 55 miles per hour (mph) because of few curves in the alignment
- Provides for widely spaced traffic interchanges and left turns, resulting in less traffic conflict and safer traveling conditions
- Supports Parkway-to-Parkway at-grade intersection treatments to support future transportation connections
- Represents the most efficient and direct route to connect southern Goodyear to the Sonoran Valley (SR 238 near the community of Mobile, Arizona)

### **2.7.2.2 Intersections with Existing Roads**

The Alternative A alignment would provide a primary connection from the Rainbow Valley Road alignment at the northern terminus and SR 238 at the southern terminus. Final engineering and design would determine the exact configuration of the traffic interchanges at these termini to accommodate average daily entering volumes from existing roads.

Additionally, each traffic interchange would be evaluated in terms of level of service (LOS) and anticipated average daily intersection entering volumes. Figure 2-9 shows a schematic of a typical parkway interchange.

Currently, there are approximately four potential traffic interchanges along the Alternative A alignment (not including the beginning of the SVPP at Rainbow Valley Road and the terminus at SR 238):

- Patterson Road (east interchange)
- South Bullard Avenue (north and south interchange)
- West Komatke Road (east interchange)
- 107th Avenue (west interchange)

Alternative A would terminate at SR 238. The traffic interchange would be designed to accommodate the existing traffic, as well as anticipated new traffic flowing onto the existing roadway. MCDOT has developed six traffic interchange options for parkways. Final alignment for connection to SR 238 and potential connections to SR 303L would be explored during final design.

### **2.7.2.3 Wash Crossings and Temporary Construction Easements**

As shown in Table 2-3, 39 wash crossings are anticipated for Alternative A, the Proposed Action. Wash crossings will be designed as either a low-water crossing (dip section), standard culvert (typically, a cylindrical aluminum corrugated pipe), or an arch span-type culvert. The arch span-type culverts are intended to facilitate wildlife movement and maintain existing drainage patterns. Details on facilities designed to accommodate wildlife movement are included in Appendix C, AGFD Design Recommendations. The wash crossings are based on preliminary engineering (30%) plans. The exact location and dimensions of wash crossings would be determined by the City during final engineering, in accordance with BLM standards.

**Table 2-3.** Alternative A (the BLM Preferred Alternative): Low-water Crossings and Culverts, Arch Span-Type Culverts, and Temporary Construction Easements

Feature	Amount proposed	Approximate Dimensions
Low-water Crossing	19	200–1,600 linear feet
Culvert	17	2- to 6-foot openings
Arch Span-Type Culvert (Wildlife Crossing)	3	Minimum of 12 feet high
Temporary Construction Easements	2	250 × 250 feet

### 2.7.3 Alternative C

Alternative C was developed by the proponent as an alternative to the Proposed Action. Alternative C's primary purpose is to locate the Parkway so that it would not be adjacent to the SDNM. Alternative C would total 18.1 miles; it would start at Riggs Road at the north end and go south for approximately 1.8 miles along Rainbow Valley Road. The proposed road would then go directly east along Patterson Road for approximately 6 miles. The next section would proceed south along the Bullard Avenue alignment for approximately 5 miles before finally going east-southeast for 5.4 miles. Alternative C ends at SR 238, and shares a common alignment with Alternative A for approximately the last 2 miles of the alignment. There are two sub-alternatives, described below, for the last approximately 2 miles of Alternative C.

Alternative C is located in Sections 34 and 35, Township 2 South, Range 2 West; Sections 2, 3, 11, and 12, Township 3 South, Range 2 West; Sections 7, 8, 15–17, 22, 23, 25, 26, and 36, Township 3 South, Range 1 West; Section 31, Township 3 South, Range 1 East; Sections 1 and 12, Township 4 South, Range 1 West; and Sections 6, 7, 18–20, and 29, Township 4 South, Range 1 East (see Figure 2-3).

Alternative C would cross approximately 10.1 miles of BLM-administered land, 2.1 miles of ASLD land, and 5.9 miles of private land. Alternative C was developed to follow the existing Patterson Road and Bullard Avenue alignments as much as possible in order to eliminate the need for new construction on ASLD lands and private inholdings. Under this alternative, a permit for ROW for State Trust land would be required. Also, the proposed Alternative C route would provide a buffer between the Parkway and the SDNM. Design and construction standards of the Parkway would be functionally identical to those described for Alternative A; only the route and the placement of drainage structures would differ substantially.

Public comment indicated concerns regarding the construction of an alignment that could harm sensitive wildlife or riparian areas. Alternative C would avoid several of these concerns by using existing ROW and reducing surface disturbance.

Characteristics of the Alternative C alignment include the following:

- Allows posted speeds of up to 55 mph
- Provides opportunities for improved access to the Estrella Mountains and improved travel and access to BLM public lands
- Removes the sights and sounds of the Parkway because it does not parallel the northern areas of SDNM
- Creates a separate pasture to the southwest that could be managed for livestock with the installation of a well as mitigation

### 2.7.3.1 Parkway Design

The Alternative C alignment contains multiple sharp turns and curves because the alignment is designed to avoid resources. Additional safety measures such as signage and barriers would be included in the final design and engineering of the Parkway.

### 2.7.3.2 Intersections with Existing Roads

The Alternative C alignment would provide a connection from the West Patterson Road alignment at the northern terminus and SR 238 at the southern terminus. Final engineering and design would determine the exact configuration of the traffic interchanges at these termini to accommodate average daily entering volumes from existing roads.

Additionally, each traffic interchange located along the alignment would be evaluated in terms of LOS and anticipated average daily intersection entering volumes.

Currently, there are five potential traffic interchanges along the Alternative C alignment (not including the beginning of the SVPP at Rainbow Valley Road and the terminus at SR 238):

- South Bullard Avenue (at West Prong Wash) (east interchange)
- 135th Avenue (north interchange)
- 115th Avenue alignment (east interchange)
- 107th Avenue (west interchange)

All interchanges under Alternative C would be designed to accommodate the anticipated new traffic flowing to and from each roadway. MCDOT has developed six traffic interchange options for parkways. Final alignment for connection to SR 238 and potential connections to the SR 303L would be explored during final design.

### 2.7.3.3 Wash Crossings and Temporary Construction Easements

As shown in Table 2-4, 44 wash crossings are anticipated for Alternative C. Wash crossings will be designed as either a low-water crossing (dip section), standard culvert (typically, a cylindrical aluminum corrugated pipe), or an arch span-type culvert. The arch span-type culverts are intended to facilitate wildlife movement and maintain existing drainage patterns. Details on facilities designed to accommodate wildlife movement are included in Appendix C, AGFD Design Recommendations. The wash crossings are based on preliminary engineering (30%) plans. The exact location and dimensions of wash crossings would be determined by the City during final engineering, in accordance with BLM standards.

**Table 2-4.** Alternative C: Low-water Crossings and Culverts, Arch Span-Type Culverts, and Temporary Construction Easements

Feature	Amount proposed	Approximate Dimensions
Low-water Crossing	30	200–1,200 linear feet
Culvert	12	2- to 6-foot openings
Arch Span-Type Culvert (Wildlife Crossing)	2	Minimum of 12 feet high
Temporary Construction Easements	2	250 × 250 feet



## 2.7.4 Alternative H

Alternative H was developed by the BLM. Alternative H represents an alignment that provides a mixture of characteristics from the Proposed Action and Alternative C. Alternative H's alignment provides access to the private holdings and BLM lands that have been identified for disposal or exchange by the BLM. In addition, Alternative H would not parallel Waterman Wash and would be removed from SDNM where possible. Alternative H would total 18.3 miles. Alternative H would travel south along Rainbow Valley Road for approximately 1.9 miles to Patterson Road. Alternative H would then turn east and follow Patterson Road for approximately 5.5 miles to the Dysart Avenue alignment (there currently is no Dysart Avenue roadway at this location), where the alignment would turn due south for approximately 5 miles and extend to the SDNM boundary, and then follow the SDNM boundary for approximately 5.9 miles in a southeasterly direction, terminating at SR 238. Alternative H shares a common alignment with Alternatives A and C for approximately the last 2 miles of the alignment. There are two sub-alternatives, described below, for the last approximately 2 miles of Alternative H.

Alternative H is located in Sections 8–10, 14, 23, 26, and 35, Township 3 South, Range 1 West; Sections 2 and 12, Township 4 South, Range 1 West; and Sections 7, 18–20, and 29, Township 4 South, Range 1 East (see Figure 2-4).

Alternative H would cross approximately 8.4 miles of BLM-administered land, 1.5 miles of ASLD land, and 8.4 miles of private land. Under this alternative, a permit for ROW for State Trust land would be necessary. Also, the proposed Alternative H route would provide a buffer between the Parkway and the SDNM. Design and construction standards of the Parkway would be functionally identical to those described for Alternative A; only the route and the placement of drainage structures would differ substantially.

Characteristics of the Alternative H alignment include the following:

- Allows posted speeds of up to 55 mph
- Located on the smallest amount of BLM public lands
- Provides the best access to BLM lands identified for disposal
- Avoids paralleling the biological and hydrologic resources of Waterman Wash and its tributaries

### 2.7.4.1 Parkway Design

The Alternative H alignment contains multiple sharp turns and curves because the alignment is designed to avoid resources. Additional safety measures such as signage and barriers would be included in the final design and engineering of the Parkway.

### 2.7.4.2 Intersections with Existing Roads

The Alternative H alignment would provide a connection from the West Patterson Road alignment at the northern terminus and SR 238 at the southern terminus. Final engineering and design would determine the exact configuration of the traffic interchanges at these termini to accommodate average daily entering volumes from existing roads.

Additionally, each traffic interchange located along the alignment would be evaluated in terms of LOS and anticipated average daily intersection entering volumes.

Currently, there are six potential traffic interchanges along the Alternative H alignment (not including the beginning of the Sonoran Valley Parkway at Rainbow Valley Road and the terminus at SR 238):

- South Bullard Avenue (north interchange)
- 135th Avenue (north and south interchange)
- Unnamed primitive road (east interchange)
- West Komatke Road (east interchange)
- 107th Avenue (west interchange)

All interchanges under Alternative H would be designed to accommodate the anticipated new traffic flowing to and from each roadway. MCDOT has developed six traffic interchange options for parkways. Final alignment for connection to SR 238, and potential connections to SR 303L would be explored during final design.

### 2.7.4.3 Wash Crossings and Temporary Construction Easements

As shown in Table 2-5, 40 wash crossings are anticipated for Alternative H. Wash crossings will be designed as either a low-water crossing (dip section), standard culvert (typically, a cylindrical aluminum corrugated pipe), or an arch span-type culvert. The arch span-type culverts are intended to facilitate wildlife movement and maintain existing drainage patterns. Details on facilities designed to accommodate wildlife movement are included in Appendix C, AGFD Design Recommendations. The wash crossings are based on preliminary engineering (30%) plans. The exact location and dimensions of wash crossings would be determined by the City during final engineering, in accordance with BLM standards.

**Table 2-5.** Alternative H: Low-water Crossings and Culverts, Arch Span-Type Culverts, and Temporary Construction Easements

Feature	Amount proposed	Approximate Dimensions
Low-water Crossing	29	200–1,200 linear feet
Culvert	8	2- to 6-foot openings
Arch Span-Type Culvert (Wildlife Crossing)	3	Minimum of 12 feet high
Temporary Construction Easements	2	250 × 250 feet

The sub-alternatives described below have been developed to determine the specific alignment for the terminus of the Sonoran Valley Parkway on the south end.

## 2.7.5 Sub-alternative F

Sub-alternative F was developed by the BLM. Sub-alternative F would provide a different alignment, and if chosen, effectively replace approximately the last 2 miles of Alternative A, C, or H. Sub-alternative F's alignment was developed to decrease the amount of surface disturbance and to avoid known historic and cultural resources; it would be confined to the existing Komatke/Gas Pipeline Road alignment, which is pre-existing. Sub-alternative F would be approximately 2.8 miles long. Sub-alternative F would not be located on the pipeline itself but approximately 200 feet to the east. Sub-alternative F is a sub-alternative that would only apply to the southern portions of the Parkway. Sub-alternative F's total length is not included in Alternative A, C, or H. Sub-alternative F would begin approximately 3 miles north of SR 238 at the Komatke/Gas Pipeline Road and would follow the existing roadway to SR 238 in order to confine

all project activities (construction, operation, and maintenance) to previously disturbed surfaces. Sub-alternative F would require access to the Butterfield Overland Stage Route and Juan Bautista de Anza National Historic Trail.

## 2.7.6 Sub-alternative G, the BLM Preferred Sub-alternative

Sub-alternative G, the BLM Preferred Sub-alternative, was developed by the BLM. The CEQ regulations at 40 CFR 1502.14(e) and Department of Interior regulations at 43 CFR 46.425 direct that an EIS “identify the agency’s preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.” According to CEQ, the agency’s preferred alternative “is the alternative that the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors” (CEQ 1981). Sub-alternative G has been identified as the BLM preferred sub-alternative because this sub-alternative represents the greatest combination of resource protection measures that would fulfill the BLM’s mission and responsibilities.

Sub-alternative G would provide a different alignment, and if chosen, effectively replace approximately the last 2 miles of Alternative A, C, or H. Sub-alternative G’s alignment was developed to avoid the Komatke/Gas Pipeline Road and to avoid known historic and cultural resources; it would be located farther to the west of these. Sub-alternative G was also developed to move the future SVPP interchange with SR 238 away from the Mobile area, farther to the west. Sub-alternative G would be approximately 2.4 miles long. Sub-alternative G would only apply to the southern portions of the Parkway. Sub-alternative G’s total length is not included in Alternative A, C, or H. Sub-alternative G would begin approximately 3 miles north of SR 238 at the Komatke/Gas Pipeline Road. Sub-alternative G would leave the existing roadway and travel in a southwesterly direction across undeveloped BLM land in order to avoid a historical homestead site. Sub-alternative G would intersect with SR 238 approximately 1 mile west of the Proposed Action’s terminus. Sub-alternative G would require access to the Butterfield Overland Stage Route and Juan Bautista de Anza National Historic Trail.

## 2.8 DESIGN FEATURES COMMON TO ALL ACTION ALTERNATIVES

The following section describes the common features of the proposed Parkway, as well as activities that are anticipated to occur before and during project construction and throughout operation and maintenance of the Parkway. Compliance with the mitigation measures listed at the end of this section will be required for the implementation of any action alternative.

The Sonoran Valley Parkway is based on the Arizona Parkway concept, which was identified in long-range transportation planning documents for Maricopa and Pinal Counties and is a critical component of the region’s ultimate transportation network, designed to serve build-out conditions (with build-out being assumed for a 40- to 60-year time frame).

The Sonoran Valley Parkway is cited in the MAG Hassayampa and Hidden Valley Transportation Framework Studies (MAG 2007a, 2009) to meet the need for a non-freeway, enhanced arterial connection between southern Goodyear and the Sonoran Valley (SR 238 near Mobile). Design features of a Parkway as determined by MCDOT will be common to each action alternative. The Parkway design and construction as described in the following sections is based on MCDOT guidance and represents generalized minimum requirements for a Parkway.

## 2.8.1 Parkway Design Features

The Arizona Parkway concept described in MAG's long-range transportation planning documents was selected as the best type of transportation facility to service urban-rural transition areas with anticipated high traffic volume. The Parkway being studied by the City, the Sonoran Valley Parkway, was identified within the MAG Regional Transportation Plan (MAG 2010) as a Parkway candidate road because of its location and the functional need in this area. The functional roadway characteristics of a Parkway include higher vehicle capacity, faster travel times, better gas mileage for vehicles, reduced air emissions, and less potential for accidents due to limited traffic conflict points (e.g., turn-bays, traffic intersections, etc.).

Parkway design features are based on MCDOT Design Guidance Recommendations, Enhanced Parkway Study, and the Arizona Parkway Intersection/Interchange Operational Analysis and Design Concept Study guidance (MCDOT 2008a). For the purposes of this EIS, general parkway design guidance was used to assist in alternatives screening and decision-making. MCDOT's Parkway design guidance outlines minimum standards and recommendations for parkways that have not been built yet. Actual parkway design may require departure from MCDOT's parkway design guidance because of site-specific requirements or environmental conditions (e.g., topography, drainage conditions, engineering constraints, etc.). At this time, detailed engineering and design have not been performed; however, the general parkway design features common to all alternatives are described to further illustrate the components of a parkway within the existing environment.

The Arizona Parkway is designed to be a hybrid of a freeway and an arterial road for enhanced traffic flow, safety, capacity, and access in urban-rural transition areas. Generally, the Parkway would include signalized intersections and prohibited left turns at cross-street intersections. Left turns would be made through indirect U-turns at crossovers located immediately beyond the intersection. Parkway design also allows for enhanced traffic safety and increased intersection capacity by limiting intersections and traffic stops and eliminating acceleration and deceleration lanes and turn bays. Generally, the major features of a parkway are similar to an arterial road; however, the parkway is designed to accommodate a greater volume of faster-flowing traffic by reducing the number of intersections and dedicated turn lanes. Additionally, parkways include a landscaped median that provides an increased aesthetic appeal in urban-rural transition areas through vegetative shielding and ground cover.

## 2.8.2 The Sonoran Valley Parkway

The Sonoran Valley Parkway would be constructed in three phases (two, four, and six lanes), contingent upon funding and growth. The two-lane Parkway would be located within the 250-foot-wide ROW but would function as a traditional major arterial road. As additional lanes are added, design characteristics of a parkway will be included. Figure 2-6 shows a cross section of how the Parkway would function as a two-lane parkway. Figures 2-7 and 2-8 show a typical parkway cross section for a four- and six-lane parkway, which includes 14-foot-wide travel lanes in both directions, as well as parkway amenities such as a landscaped median, edge treatments, and shoulders.

The Sonoran Valley Parkway, at full build-out, would accommodate approximately 72,000 vehicles per day at LOS C. The LOS is based on the number of lanes, functional classification of the Parkway, and desired capacity. Each LOS is given a letter designation from A to F, with A representing the best traffic conditions and F the worst. LOS C is anticipated because of the rapid growth anticipated for urban, suburban, and rural areas within the region (MCDOT 2009). The Parkway is also designed to accommodate a faster flow of traffic. Design speed of a Parkway depends, in part, upon terrain and topography, as well as sight distance for stopping, intersection sight distance, horizontal and vertical curvature, and geometrics of turning.

### 2.8.2.1 Intersections and Cross-Overs

Figure 2-9 shows a typical parkway intersection in accordance with MCDOT Parkway design guidance. Final design and engineering based on specific Parkway conditions for the Sonoran Valley Parkway will determine the exact configuration of the Parkway intersection(s). Intersection configuration design would also be contingent upon access, traffic flow, and Parkway-to-arterial connections.

Generally, the Parkway would include signalized intersections and prohibited left turns at cross-street intersections. Left turns would be made through indirect U-turns at crossovers located immediately beyond the intersection.

### 2.8.2.2 Drainage

Drainage design for the Parkway would be based on recommendations from the *Drainage Policies and Standards for Maricopa County, Arizona* (Maricopa County 2007) and the *Roadway Design Manual* (MCDOT 2004). Typically, Parkway drainage structures would be completed in final engineering, based on drainage conditions and patterns, peak flows, topography, and impacts to floodplains and wash crossings.

According to the *Sonoran Valley Road Final Drainage Report* (Final Drainage Report) (V3 Companies of Arizona, Ltd. [V3] 2007), the project area is located in an area that receives shallow sheet flow and channelized runoff during large storm events. Discussions between V3, the City, BLM, and MCDOT determined that to the extent possible, the Alternative A Parkway alignment should preserve the existing energy conditions of the watershed by maintaining a shallow sheet flow condition. In maintaining the sheet flow conditions, the major and minor washes in this area should not experience a major change in velocity and scour conditions, which could adversely impact the waterways.

In order to manage the off-site flows directed to the site from the south, two types of crossings have been incorporated into the proposed vertical alignment of Sonoran Valley Parkway. The first crossing type consists of a dip section in the proposed vertical alignment. These crossings are typically used in areas in which water crosses the Parkway in a shallow sheet flow type of conveyance that does not have a well-defined stream or channel associated with the flow. The dip sections were analyzed as a weir and are designed to have a weir crest length long enough to keep the 100-year peak discharge at a maximum depth of 0.50 foot above the pavement. By keeping the depth across the pavement at 0.50 foot, an all-weather crossing can be maintained in these dip section crossings. The dip sections are constructed so that they protect the Parkway from being undermined by the crossing flow. A 2-foot-wide concrete apron, followed by 10 feet of riprap erosion protection, is incorporated on the upstream and downstream side of the Parkway in order to provide both infiltration and deceleration of sheet flow entering and exiting the pavement.

The second type of crossing is located at the more defined washes, which convey the more concentrated and higher-magnitude flows. These crossings incorporate the use of concrete culverts into the vertical alignment of Sonoran Valley Parkway. At these locations, the peak discharges for the 100-year storm event are conveyed beneath the Parkway with a maximum of 0.50 foot of overtopping.

Detailed locations of these dip sections and culvert locations are presented in Tables 2-3, 2-4, and 2-5 in Section 2.3 above.

### 2.8.2.3 Lighting

Surface lighting for the Parkway may be included in the final design in accordance with City recommendations. All surface lighting would be designed to be in keeping with the Maricopa County Dark Sky Ordinance as stated in Section 1112 of the Maricopa County Zoning Ordinance (Maricopa County 2012) and Article 10 of the City of Goodyear's Zoning Ordinance (City 1999).

### 2.8.2.4 Traffic Control and Signalization

Signing is a critical element of Parkway design, particularly in instances where directional crossovers occur (i.e., non-signalized U-turns). U.S. Department of Transportation standards recommend multiple regulatory signs at each crossover, major intersections, approaches, traffic interchanges, and Parkway-to-arterial connections.

A detailed signing configuration in keeping with the American Association of State Highway and Transportation Officials (AASHTO) and MCDOT requirements for Parkways will be included in the final design and engineering. Signal length, spacing, and progression will be included in the final design and engineering. However, Parkways are characterized by fewer signals (spaced 0.5 mile or more) to allow greater traffic speeds and improve traffic flow. Signalized (versus signed) directional crossovers may be considered in final design.

### 2.8.2.5 Curbing/Gutters

Curbs are typically used on the edges of Parkways in urban settings, whereas rural areas typically do not require curbing but rather a thickened edge treatment. Maricopa County design standards require 2-foot shoulders with edge treatments on rural roads. AASHTO recommends non-vertical curb (or gutter) on facilities with a design speed of greater than 45 mph. At final build-out, the six-lane Parkway will likely have curbing along the median except for at the directional crossovers.

### 2.8.2.6 Right-of-Way Fencing

Fencing along the Parkway will be developed by the City and approved by the BLM, depending on requirements for wildlife, livestock, safety, and restrictions for access. Standard BLM ROW fencing would be applied.

Table 2-6 provides a summary of the Sonoran Valley Parkway design characteristics and criteria, which are based on MCDOT Parkway design guidelines.

**Table 2-6.** Sonoran Valley Parkway Design Characteristics and Criteria

<b>Parkway length</b>	Alternative A (the BLM Preferred Alternative): 15.72 miles total, including the chosen Sub-alternative Alternative C: 18.12 miles Alternative H: 18.28 miles Sub-alternative F: 2.8 miles Sub-alternative G (the BLM Preferred Sub-alternative): 2.38 miles
<b>ROW width</b>	Total ROW = 250 feet (200 feet plus 25-foot-wide drainage easements on both sides of ROW centerline)

**Table 2-6. Sonoran Valley Parkway Design Characteristics and Criteria (Continued)**

<b>Parkway width</b>	Two lanes Total Parkway width = 44 feet (28-foot-wide paved surface with 8-foot-wide graded shoulders)  Four lanes Total Parkway width (including median) = 200 feet (Two 28-foot-wide paved surfaces [two lanes in each direction] with 8-foot-wide graded shoulders separated by a 112-foot median)  Six lanes Total Parkway width (including median) = 200 feet (Two 42-foot-wide paved surfaces [three lanes in each direction] with 8-foot-wide graded shoulders separated by a 84-foot median)
<b>Parkway material and structural section</b>	Asphalt over aggregate base per geotechnical engineer's recommendations
<b>Parkway design speed (all action alternatives)</b>	65 mph
<b>Parkway posted speed (all action alternatives)</b>	55 mph
<b>Drainage design criteria</b>	In accordance with BLM, City, ASLD, and MCDOT requirements
<b>Parkway longitudinal slopes</b>	2.0% maximum 0.3% minimum
<b>Parkway cross slope</b>	5.0% maximum 2.0% minimum
<b>Temporary construction easements*</b>	Alternative A: 1.38 acres Alternative C: 1.38 acres Alternative H: 1.38 acres

\* Temporary construction easements are proposed in areas that would be common to Alternatives A, C, and H.

### **2.8.2.7 Wildlife Crossings within the Estrella Mountains to SDNM Wildlife Movement Corridor**

The Lower Sonoran RMP (BLM 2012a) designated the Estrella Mountains to SDNM Wildlife Movement Corridor. Wildlife-enabled arch span-type culverts would be constructed within the Estrella Mountains to SDNM Wildlife Movement Corridor to facilitate roadway permeability for larger mammals such as mule deer and bighorn sheep. Dimensions and measurements of the wildlife-enabled arch span-type culverts would be determined during final design. The selection of an action alternative will determine the precise location within the Estrella Mountains to SDNM Wildlife Movement Corridor.

### **2.8.2.8 Wildlife Crossings outside of the Estrella Mountains to SDNM Wildlife Movement Corridor**

As shown in Tables 2-2, 2-3, and 2-4, there are numerous culverts proposed for the SVPP. Many of these drainage culverts may function as a crossing for terrestrial wildlife species and will be designed to maximize roadway permeability for small to medium-sized mammals, reptiles, and amphibians. Culverts that are intended to facilitate roadway permeability for wildlife are discussed below in the Applicant-Committed Mitigation Measures in Table 2-7 in Section 2.9.

### **2.8.2.9 Wildlife Funnel Fencing**

Funnel fencing (exclusion fences) will be included on all wildlife crossings. All arch span-type culvert and underpasses will include exclusion fences in order to be effective. A minimum height of 7 feet from ground level to the top of the fence would be required to accommodate all mammals of the area.

The funnel fencing would be the extent of the highway that passes through suitable mule deer or bighorn sheep habitat within lands included in the linkage area; the length of the funnel would be determined on a case-by-case basis. All exclusion fences would include small mammal-sized fencing material on the lower portions of the fence.

### 2.8.3 Construction Activities

Construction of the Parkway would be phased in three parts, beginning with two bidirectional lanes being built within the 250-foot ROW that would function as a traditional arterial roadway. Additional lanes would be constructed in two-lane increments as funding becomes available, culminating in a six-lane bidirectional Parkway with a landscaped median. Figure 2-10 below illustrates how the phased construction of the two-, four-, and six-lane construction will occupy the requested 250-foot ROW. Construction of two lanes of roadway would be conducted within a 12- to 24-month time frame. Completion of the entire six-lane Parkway could be finalized within a 60- to 72-month time frame but is contingent upon available funding and future development of the Rainbow Valley. A draft POD was submitted to BLM in April 2009. The POD will be finalized prior to the granting of the ROW and start of construction.

### 2.8.4 Construction of Two Lanes

The first phase of construction (two lanes) includes building the outside curb and gutter and constructing the traffic lanes with the appropriate edge treatments and shoulders. The two bidirectional lanes would be constructed on the easternmost portion of the corridor. No U-turn crossovers would be constructed at this time. The two-lane Parkway would remain in place and functional until additional phases of construction occur.

#### 2.8.4.1 Earthwork and Paving

Construction activities would include earthwork grading; excavation; installation of drainage structures; placement of asphalt pavement, gravel, and decomposed granite; clean up; and site reclamation.

During construction, heavy equipment would be used to clear the site, build the lanes, and haul and lift materials. Excavators, bulldozers, load graders, compactors, water trucks, dump trucks, forklifts, scrapers, trenchers, line-up trucks, and pick-up trucks would likely be used in construction.

After initial grading, areas within the ROW that require additional fill would be filled as crews would begin construction of the Parkway subgrade. Road base would be placed along the established Parkway and graded to plan. Graders, scrapers, and bulldozers would be used to obtain the necessary grade and alignment. Once the prescribed grade and center line of travel are constructed to plan, pavement would be placed.

#### 2.8.4.2 Construction Access

Access to the construction site would be either from the intersection of Rainbow Valley and Riggs Roads, or from the proposed intersection of Sonoran Valley Parkway and SR 238. Access to the project area from Rainbow Valley Road and Riggs Road would be via a 20-foot-wide construction road located in the south and west halves of the ROW. Access to the project area from SR 238 would be via the same 20-foot-wide construction road located in the south and west halves of the ROW. This temporary roadway would remain in use during the entire project. After all phases have been completed, the construction road would



be hydroseeded with a mixture of mulch and native seed mix. The goal is to allow the temporary roadway to return to a natural state.

### **2.8.4.3 Construction Staging**

Because of the length of the project corridor, construction would be phased into 3- to 4-mile-long segments. Assuming that construction starts at SR 238, working north, the construction staging areas would be located at the north end of each phase. Placement of temporary-use construction staging areas at the ends of each phase would allow the staging areas to be used for two phases at one location. Earthwork for each phase would be designed so that the amount of earth excavated from the high points would be used to fill in the low points; if additional fill is needed to build the road bed, it would be purchased from local material source brokers and trucked to the site. No borrow pits are planned for any federal lands; specific material source brokers have not been identified at this time. All excess dirt that may be generated would be stored on-site within the ROW for use during future phases.

Preparation of the construction corridor would involve topographic survey of the ROW to establish final road bed grade and staking of the center line of travel. The clearing of some natural vegetation may be required; however, selective clearing would be performed only when necessary for surveying, construction, and maintenance operations. Construction staging would avoid or minimize impacts within the wildlife linkage areas. In addition, construction staging areas would include design features intended to minimize impacts to wildlife, such as exclusion fencing, pit and open trench avoidance, and employee awareness. The contractor would not disturb areas outside the ROW without prior written permission from the appropriate land managing agency or individual owner. A Native Plant Removal/Restoration Plan detailing native plant identification, removal, and restoration would be prepared prior to the start of construction.

### **2.8.4.4 Construction Activities**

Construction sites, material storage yards, and access roads (identified on the 30% civil engineering plans in Appendix D) would be kept in an orderly condition throughout the construction period. Refuse and trash, including stakes and flags, would be removed from the sites and disposed of in an approved manner at an approved refuse facility such as the Butterfield Station Landfill in the community of Mobile. Totally enclosed containment would be provided for all trash and hazardous materials. All construction waste, including trash, litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials would be removed to a disposal facility authorized to accept such materials. To prevent the spread of invasive or noxious weeds, the project would comply with the *Phoenix District Integrated Weed Management Environmental Assessment* (BLM 2011) in coordination with the BLM, prior to the start of construction. Noxious weed control would be incorporated into the POD.

No construction equipment oil, antifreeze, or fuel would be drained on the ground. Oils or chemicals would be hauled to an approved site for disposal. No open burning of construction trash would be allowed on BLM-administered lands. No unauthorized use would be permitted on the construction access road during the project.

Following construction and cleanup, reclamation would be completed. The disturbed surfaces would be restored to the original contour of the land surface to the extent determined by BLM. During rehabilitation, the topsoil material would be spread evenly over the disturbed areas.

### **2.8.4.5 Restoration and Landscaping**

A Native Plant Removal/Restoration Plan detailing native plant identification, removal, and restoration would be prepared in coordination with the BLM. Appropriate site-specific seed mixes would be used. Salvaged native plants will be used for revegetation of disturbed areas, if appropriate, along with seeding using BLM-recommended seed mixes. Preferably, seed would be planted between the months of November and January following the Parkway construction. Seed would be planted using straw mulching or hydromulching as directed by BLM; mulch would need to be sterilized or certified “weed free” to prevent increased spread or establishment of non-native weed species.

A construction contingency plan would be prepared prior to the start of construction. The plan would include methods for soil screening, segregation of potentially contaminated soil, soil sampling and analysis, soil disposal and reuse, and a site health and safety plan. The construction contingency plan would minimize removal of xeroriparian vegetation during construction within the wildlife linkage areas at wash crossings. Restoration and revegetation of xeroriparian vegetation will be conducted post-construction at the approaches to wildlife crossing structures.

Landscaping would occur on both sides of the two-lane road where feasible, with the final landscape design to occur during the construction of the six-lane Parkway.

## **2.8.5 Construction of Four Lanes**

The second phase of construction (total of four lanes) would be added as warranted by funding and would include two additional lanes of traffic that functioned as an arterial roadway. Funding would become available as community growth, expansion, and increased traffic volume furthers the need for an expanded Parkway. The four-lane scenario includes the addition of two lanes and a median (see Figure 2-10). Construction of this portion of the Parkway would be on the opposing side of the median and the existing two-lane roadway. The four-lane roadway configuration would include a space for the median, but intersection U-turn crossovers would not be completed until the final (six-lane) construction.

### **2.8.5.1 Earthwork and Paving**

The construction process for earthwork, excavation, grading, and installation of drainage structures would be the same as used for the construction of the two-lane scenario.

### **2.8.5.2 Construction Access**

Access to the construction site and ROW for staging would be the same as used for the two-lane scenario (i.e., the 20-foot-wide temporary construction road that would be built parallel to the western and southern sides of the two-lane Parkway).

### **2.8.5.3 Construction Staging**

Construction phasing would be similar to the two-lane scenario; however, staging and temporary use areas would already be established. Earthwork for each phase would be designed so that the amount of earth excavated from the high points would be used to fill in the low points; if additional fill is needed to build the road bed, it would be purchased from local material source brokers and trucked to the site. No borrow pits are planned for any federal lands; specific material source brokers have not been identified at this time. All excess dirt that may be generated would be stored on-site within the ROW for use during future phases.

Preparation of the construction corridor would also be similar to the two-lane scenario and would involve topographic survey of the ROW to establish final road bed grade and staking of the center line of travel.

The clearing of some natural vegetation may be required; however, selective clearing would be performed only when necessary for surveying, construction, and maintenance operations. The contractor would not disturb areas outside the ROW without prior written permission from the appropriate land managing agency or individual owner.

#### **2.8.5.4 Construction Site**

Construction sites used for the construction of the two-lane road could be used for construction of the four-lane road, as appropriate. Depending on the timeframe, the construction sites may require additional vegetation clearing and blading if natural revegetation occurs in between Phase One (two lanes) and Phase Two (four lanes). New construction sites, material storage yards, and access roads (identified on the civil engineering plans in Appendix D) would be kept in an orderly condition throughout the construction period. Refuse removal and containment would be the same as in the two-lane scenario.

Following construction and cleanup, reclamation would be completed. The disturbed surfaces would be restored to the original contour of the land surface to the extent determined by BLM. During rehabilitation, the topsoil material would be spread evenly over the disturbed areas.

#### **2.8.5.5 Restoration and Landscaping**

The Native Plant Removal/Restoration Plan used for the two-lane scenario would also be used for the four-lane scenario. A Native Plant Removal/Restoration Plan detailing native plant identification, removal, and restoration would be prepared in coordination with the BLM.

Landscaping would occur on both sides of the four-lane road where feasible. The four-lane scenario will have a median; however, final landscaping and revegetation may occur during construction of the six-lane Parkway, when median crossovers and left turns are constructed.

#### **2.8.5.6 Drainage**

Drainage structures will be constructed the same as for the two-lane scenario, based on drainage conditions specific for the Parkway under construction.

Detailed locations of these dip sections and culvert locations are presented in Tables 2-3, 2-4, and 2-5.

### **2.8.6 Construction of Six Lanes**

The third and final phase of construction (six lanes), or the Parkway at build-out, would be three lanes in each direction, with a center median and non-signalized U-turns spaced along the corridor. This phase of construction would include the addition of non-signalized U-turns that cross the median and allow left-turn movements strategically placed along the Parkway. Determination of placement of the left-turn movements would be dependent on traffic patterns and access at that time. The fifth and sixth lanes would be added to the inside of the existing four lanes adjacent to the median sides of the Parkway. Access management for traffic operations on the Parkway would be implemented to create and maintain a high level of roadway safety, as well as to reduce vehicle stops and increase traffic capacity.

Currently, there is no time frame for build-out of the six-lane Parkway, as construction is contingent upon future funding. Funding would become available as community growth and expansion furthers the need

for an expanded Parkway. According to MAG studies for population and economic growth (e.g., *Hidden Valley Transportation Framework Study*, MAG 2009), build-out of the area is anticipated to occur within the next 40 to 60 years. Thus, the need for construction of the six-lane Parkway scenario due to population growth and travel demand is anticipated within this time frame.

BLM would require stipulations prior to the construction of additional lanes (both the four-lane and six-lane construction) that a notice to proceed (NTP) and additional NEPA analysis may be needed due to the likelihood of major environmental conditions in the area changing over a 40- to 60-year period.

### **2.8.6.1 Earthwork and Paving**

The construction process for earthwork, excavation, grading, and installation of drainage structures would be the same as used during the construction of the two-lane and four-lane scenarios.

### **2.8.6.2 Construction Access**

Access to the construction site and ROW for staging would be the same as used for the two-lane scenario (i.e., the 20-foot-wide temporary construction road that would be built parallel to the western and southern sides of the two-lane Parkway). The addition of the third lane to each direction would provide access to the interior median along the length of the action alternative.

### **2.8.6.3 Construction Staging**

Construction staging would be similar to the four-lane scenario; however, staging and temporary use areas would already be established. The clearing of some natural vegetation may be required but would likely be minimal. The contractor would not disturb areas outside the ROW without prior written permission from the appropriate land managing agency or individual owner.

### **2.8.6.4 Construction Site**

The construction site for the six-lane road would be adjacent to the existing four-lane road. New construction sites, material storage yards, and access roads would not be necessary. Refuse removal and containment would be the same as in the two- and four-lane scenarios.

### **2.8.6.5 Restoration and Landscaping**

At this time, the final Parkway landscaping design plan would be implemented and would likely include clusters of vegetation spaced in 300- to 500-foot spans along the Parkway. Temporary use construction areas and staging and storage sites would also be restored to preconstruction conditions.

### **2.8.6.6 Drainage**

Drainage structures will be constructed the same as for the two- and four-lane scenarios, based on drainage conditions specific for the Parkway under construction.

Detailed locations of these dip sections and culvert locations are presented in Tables 2-3, 2-4, and 2-5.

## 2.8.7 Parkway Operation and Maintenance

The City would be responsible for the operation and maintenance of the Sonoran Valley Parkway. An intergovernmental agreement for operation and maintenance responsibilities between the City and MCDOT may be necessary if, at the completion of construction, there are portions of the Parkway that still lie in unincorporated areas of Maricopa County. The City would exercise their option to contract with MCDOT or conduct operation and maintenance responsibilities themselves.

### 2.8.7.1 Operations

The City would be responsible for the Parkway operation, including information dissemination regarding road closures, delays, or detours, traffic management, temporary incident management, lane control, variations in speed, and road closures. Additionally, MCDOT has incorporated a variety of Intelligent Transportation Society (ITS) innovations into roads throughout the valley, such as vehicle-to-infrastructure communications that relay traffic information to control the phase and timing of traffic signals in order to avoid vehicle congestion at intersections. ITS innovations improve Parkway safety and efficiency and would be considered during final design and engineering of the two-lane Parkway based on the final Parkway configuration (similar innovations would be considered during future construction of the four- and six-lane Parkway construction).

### 2.8.7.2 Maintenance

City Public Works staff would be responsible for maintaining and monitoring the condition of the Parkway periodically. The City is responsible for landscaping, street sweeping, curb and gutter maintenance, signage, storm drains, and emergency cleanup.

Routine maintenance will include regrading gravel shoulders and cleaning the paved Parkway surface as frequently as necessary (typically following major rainfall events), along with periodic maintenance of the Parkway surface, such as seal coating and freshening up the Parkway paint markings.

Occupational Safety and Health Administration (OSHA) safety regulations would be enforced for this project. The City is responsible for ensuring compliance with OSHA regulations.

The City would manage the handling of industrial waste and toxic substances in full accordance with all applicable federal, state, and local regulations. Regulated hazardous materials would be managed in an appropriate manner that protects workers and the public and prevents accidental releases to the environment. In the event that any such materials were to be released to the environment in excess of the reportable quantities defined under any relevant federal or state regulations, the required notifications would be made, and required reports would be completed and submitted to the appropriate agencies. In such an event, the BLM would be provided with copies of any such reports, along with the designated recipient agencies.

Events such as natural and human-caused forest or brush fires may also damage or cause loss of vegetation cover and underbrush, resulting in exposed soils that are susceptible to erosion. Any wildland fires along the Parkway within the project ROW would be responded to by the City Fire Department. Periodic inspection and/or annual maintenance of the Parkway would be conducted over the life of the project. Maintenance activities would be conducted as needed.

## 2.9 APPLICANT-COMMITTED ENVIRONMENTAL PROTECTION MEASURES

The following applicant-committed environmental protection measures were developed by BLM and the City to ensure that Parkway construction and operation does not result in unnecessary or unreasonable environmental degradation. Applicant-committed environmental protection measures are actions, practices, or design features that are part of all action alternatives and would be implemented by the proponent (the City). Under all alternatives, the applicant-committed environmental protection measures listed in Table 2-7 would be implemented to minimize adverse impacts of the SVPP to sensitive environmental resources. These would be included as conditions of approval and would be binding in the event that the Sonoran Valley Parkway were transferred to or operated by another entity.

**Table 2-7. Applicant-committed Environmental Protection Measures and Best Management Practices**

<b>TOPOGRAPHY AND SOILS</b>	
Topography	Once the appropriate grade is reached, the road would be paved. A geotechnical engineer would develop specifications for this effort during the final design. Cut and fill slopes would be designed such that the maximum slope will be 3:1 (3 horizontal feet for each 1 vertical foot).
Soils	<p>According to the Natural Resources Conservation Service (2007), soils within the project area limits have a low to medium shrink-swell potential; therefore, no special design considerations would be needed to stabilize the subgrade. Subgrade stabilization would consist of over-excavating 14 inches measured from rough grade, adding water, and compacting the soil. Erosion control on slopes would be achieved by "cat tracking." This process would be conducted by driving a bulldozer perpendicular to the slope, leaving track impressions in the soil; impressions would fill with water and reduce stormwater runoff and erosion. Other erosion and sediment control activities can include use of straw wattles, silt fences, or similar methods to prevent erosion and sediment loading, as necessary. The BLM would be consulted and have final approval on the specific techniques and materials to be used for soil stabilization. Many of these controls would likely be left in place until full stabilization of the Parkway is complete. A stormwater pollution prevention plan (SWPPP) would be developed prior to construction and would more fully elaborate erosion, sediment control, and stabilization methods and would be included in the POD.</p> <p>A variety of safety-related plans and programs would be developed and implemented to ensure safe handling, storage, and use of hazardous materials (e.g., Hazardous Material Business Plan). Project personnel would be supplied with appropriate personal protective equipment (PPE) and would be properly trained in the use of PPE and the handling, use, and cleanup of hazardous materials used during the project, as well as procedures to be followed in the event of a leak or spill. Adequate supplies of appropriate cleanup materials would be stored on-site.</p>
<b>AIR QUALITY</b>	
Dust abatement	Dust abatement using an approved dust suppression coating and other air quality protection measures would be implemented during construction, according to BLM, the City, and County Air Quality Control Districts, to ensure compliance with federal and regional air quality standards.
<b>CULTURAL RESOURCES</b>	
Cultural and/or historic sites	Measures will be incorporated to avoid sites through project design.
<b>WATER RESOURCES</b>	
Stormwater	Stormwater flows for the Proposed Action, action alternatives, and sub-alternatives are based on the FCDMC <i>Rainbow Valley Area Drainage Master Plan</i> (Rainbow Valley Drainage Study) (Maricopa County Flood Control District 2011). Major stormwater flows, greater than 500 cubic feet per second, were used to design Parkway crossings that used either box culverts or a depressed, or dipped, pavement profile. Minor stormwater flows would be addressed during final design. Arch span-type culverts are typically located in incised washes, while dipped profiles are located in areas where the existing ground is flat. Dipped crossings are designed so that the depth is less than 6 inches to accommodate safe crossing by emergency vehicles.

**Table 2-7. Applicant-committed Environmental Protection Measures and Best Management Practices (Continued)**

<b>WATER RESOURCES, continued</b>	
Clean-up and site reclamation	<p>Construction sites, material storage yards, and access roads would be kept in an orderly condition throughout the construction period. Approved enclosed refuse containers would be used throughout the SVPP. Refuse and trash would be removed from the sites and disposed of in an approved manner. Oils or chemicals would be hauled to a disposal facility authorized to accept such materials. Open burning of construction trash would not be acceptable.</p> <p>All post-construction ROWs would be restored, as required by the BLM. All practical means would be made to restore the land to its original natural drainage patterns. Since revegetation would be difficult in many areas of the SVPP because of low amounts of precipitation, all practicable measures would be taken to minimize disturbance during construction.</p>
Reclamation of temporary disturbance	<p>All temporarily disturbed areas would be reclaimed to as close to their preconstruction conditions as possible, as required by the BLM. BLM-approved seed mixes and/or transplants would be applied to temporarily disturbed areas, as required. No fertilizer would be used during stabilization or rehabilitation activities unless authorized by the BLM. When construction of stormwater management structures is complete, contours would be carefully restored to the extent feasible.</p>
<b>VEGETATION AND WILDLIFE</b>	
Vegetation	<p>Blading and removal of vegetation over the entire road bed and the temporary construction access road would be required for each phase of the construction (two lanes, four lanes, and six lanes). Rehabilitation and reclamation of the disturbed areas would consist of recontouring these areas to blend into the surrounding terrain, or as requested by the BLM. The area would be reseeded using seed mixtures approved by the BLM; all seed mixtures would be certified as noxious weed-free, as specified in <i>DOI-BLM-AZ-P000-2011-001-EA</i>. All rehabilitation and reclamation would be conducted to BLM standards. The use of fertilizer is not expected at this time. Transplants of native species may be required by BLM.</p>
Wildlife	<p>Consultation on wildlife mitigation designs and siting during development of the final engineering plans and construction phases will be conducted with AGFD, in coordination with the BLM.</p>
Wildlife	<p>In terms of designing for wildlife crossings for larger mammals, recommendations in <i>Arizona Missing Linkages: Gila Bend–Sierra Estrella Linkage Design</i> (Beier et al. 2008) indicate that wildlife crossings would be needed in three distinct corridors. As a result, fill slopes adjacent to the wildlife crossings would extend beyond the proposed ROWs, and temporary construction easements would be needed in these locations. Dimensions and measurements of the wildlife-enabled arch span-type culverts would be determined during final design. The selection of an action alternative will determine the precise location within the Estrella Mountains to SDNM Wildlife Movement Corridor.</p>
Wildlife	<p>Design culverts and dip sections with at-grade natural substrate bottoms and avoid use of large riprap in front of or adjacent to culverts and dip sections; and/or backfill with topsoil and stabilize with vegetation to optimize movement of barrier sensitive species such as Desert tortoise. Design culverts and dip sections to avoid sharp dropoffs and scour at the downstream end.</p> <p>Outside the Linkage Zone use box culvert designs for medium-sized mammals at additional locations that will facilitate wildlife movement into future plans for open space within the city of Goodyear. Use small pipe, box culvert, and/or pipe culvert designs for small mammals, at a minimum, for all other drainage crossings that will need flood control structures within and outside the Linkage Zone.</p> <p>Refer to Appendix C for AGFD wildlife crossing design specifications.</p>
Wildlife	<p>Construction staging and temporary construction easements would avoid or minimize impacts within the wildlife linkage areas.</p>
Wildlife	<p>Minimize removal of xeroriparian vegetation during construction within the wildlife linkage areas at wash crossings. Restoration and revegetation of xeroriparian vegetation will be conducted post-construction at the approaches to wildlife crossing structures.</p>
<b>VISUAL RESOURCES</b>	
Lighting system	<p>Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives and would be shielded and oriented to focus illumination on the desired areas and minimize additional nighttime illumination in the site vicinity.</p>

**Table 2-7. Applicant-committed Environmental Protection Measures and Best Management Practices (Continued)**

<b>TRAVEL MANAGEMENT</b>	
Road maintenance	Road maintenance would be performed as needed. Paved roads would be swept, sealed, and/or overlaid as needed. Grading and drainage would be maintained for gravel and earth roads. Dust palliatives would be applied, as required, to limit fugitive dust.
Access to existing primitive roads	Public access to primitive roads that are currently open for motorized use would be maintained and would include either a traffic interchange, cattle guard, or gate.
<b>GRAZING MANAGEMENT</b>	
Fencing	The contractor would install temporary fencing along the ROW in order to limit off-road access and keep cattle and wildlife from gaining access to the Parkway during construction. No construction vehicle movement shall occur on BLM-administered lands outside the approved project ROW limits. When the initial two-lane highway is complete, the City would install permanent fencing and crossings, in accordance with BLM stipulations.
Range Improvements	Any range improvements, such as fences, wells, stock tanks, etc., will be mitigated appropriately at the expense of the City.
<b>SPECIAL DESIGNATIONS</b>	
Obstacles for preventing illegal access into SDNM	<p>Raised curb: Discourages users from pulling off the shoulder of the proposed road.</p> <p>Fencing: Discourages users from crossing into undeveloped land located outside the designated ROW.</p> <p>Guardrails: Discourages users from crossing into undeveloped land located outside the designated ROW.</p> <p>Locked gate: Helps prevent unauthorized users from entering SDNM.</p> <p>Concrete pedestals at washes: Prevents small OHVs or all-terrain vehicles from driving into SDNM via wash crossings.</p>
Provide hiking and equestrian access to the Juan Bautista de Anza NHT	The City will provide public hiking and equestrian access to the Juan Bautista de Anza NHT and historic trail corridor. This may be an overpass, underpass, or access route to a trailhead.
<b>HAZARDOUS MATERIALS AND SOLID WASTE</b>	
Hazardous Materials	All hazardous materials used during construction and operation would be stored on-site in storage tanks/vessels/containers that are specifically designed for the characteristics of the materials to be stored; as appropriate, the storage facilities would include the needed secondary containment in case of tank/vessel failure. All secondary containment would meet OSHA requirements and would be sized to contain 110% of full tank/vessel volume.
Hazardous Materials	An update to the Phase I Environmental Site Assessment (SWCA 2007, 2009c, 2009d) would be required as per ASTM 1527.00, an additional Phase I ESA upon the approval of the POD.
Hazardous waste recycling	To the extent possible, construction-phase hazardous wastes would be recycled (oil and grease). Transport of the wastes and contaminated containers would be contracted to a qualified waste transporter, and the wastes would be taken, under manifest, to a permitted local landfill or treatment and disposal facility.
<b>SOCIAL AND ECONOMIC CONDITIONS</b>	
Workforce	Where possible, the City would hire local construction workers for the construction of the SVPP.
<b>PUBLIC HEALTH AND SAFETY</b>	
Construction access restriction	In order to protect human health and safety, temporary construction easements would be fenced appropriately to restrict public access during construction.
<b>WILDLAND FIRE</b>	
Emergency Response	The City Fire Department would respond to any wildland fires along the Parkway, within the project ROW.



The effectiveness of potential mitigation measures is disclosed in the subsequent discussion of residual impacts, which are those impacts that would remain after the implementation of all potential mitigation measures.

The ROD will summarize the requirements for mitigation monitoring and enforcement to ensure compliance with the decision, in accordance with BLM NEPA Handbook H-1790-1 and 40 CFR 1502.2(c).

## 2.9.1 Potential Mitigation Measures

All applicant-committed environmental protection measures, management stipulations, and LORS provided in Table 2-7 would be incorporated into the ROD as terms and conditions of the ROW grant. Potential mitigation measures are discussed following the impact analysis for each resource or resource use (see Chapter 4) and could also be selected in the ROD as terms and conditions of the ROW grant. Potential mitigation includes additional means, measures, or practices not incorporated into the action alternatives that would further reduce or eliminate impacts. These mitigation measures are specific to each resource section and thus are considered following the impact analysis in Chapter 4. These mitigation measures will be considered as possible terms and conditions of the ROD.

## 2.10 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

This section describes project alternatives that were initially considered for analysis in the EIS but were subsequently eliminated because they did not satisfy the screening criteria discussed above. Table 2-8 describes the alternatives and sub-alternatives that are not analyzed in detail (Alternatives B, D, and E and Sub-alternatives H1 and H2) and provides explanations for why the alternative or sub-alternative does not meet the screening criteria. Figure 2-11 illustrates the alternatives eliminated from further analysis.

### 2.10.1 Rainbow Valley Road Connection

Rainbow Valley Road is an existing, rural arterial roadway that serves the Rainbow Valley area; it is paved from Elliott to Riggs Roads. The Rainbow Valley Road connection would utilize the existing dirt roadway from Riggs Road south to Rainbow Valley Road, is within the existing roadway ROW, and is of sufficient width to accommodate the planned improvements for a two-lane Parkway only. The Rainbow Valley Road Connection does not include the Parkway design features as specified by the MCDOT Design Guidance Recommendations, Enhanced Parkway Study, and the Arizona Parkway Intersection/Interchange Operational Analysis and Design Concept Study guidance (MCDOT 2008a). Therefore, the Rainbow Valley Road Connection would not accommodate expansion to a four- and six-lane Parkway. In addition, roadway straightening would be required at the current 90-degree intersections at Bullard Avenue and Patterson Road to accommodate the proposed 55-mph speed. None of the other roads, with the possible exception of portions of Bullard Avenue and Patterson Road, have existing ROW available for use as of this publication date. Acquisition of ROW would add to the cost of the project and possibly delay the project if ROW had to be obtained through the use of eminent domain, or could result in the overall abandonment of the project by the City because the costs associated with acquiring private land could make it economically infeasible. Therefore, this alternative was not carried forward for detailed analysis because it would be technically and economically infeasible. Furthermore, it is substantially similar in design to Alternatives A and C and would not have environmental benefits beyond the Proposed Action alternatives.

**Table 2-8. Screening Results: Alternatives Not Considered for Detailed Analysis**

Alternative Name	Screening Criteria for Alternatives				Environmentally Reasonable (Resource Considerations)
	Consistent with Purpose and Need*	Responds to Public and Agency Scoping	Technically Practical and Feasible	Economically Practical and Feasible	
<b>Rainbow Valley Road Connection</b>	Yes, because this alternative would enable the City to construct a Parkway as applied under AZA-34177; it would be in conformance with the purpose of the utility corridors and would be in conformance with the Lower Sonoran RMP.	Yes, because this alternative would consider the issues that were identified during scoping.	Yes, because this alternative would not involve technical constraints.	No, because Rainbow Valley Road ends at Patterson Road. This alternative is economically infeasible because it would require extensive design features to facilitate the extension construction of Rainbow Valley Road, which does not currently have any design, plans, or mobility objectives in place.	No, because this alternative would result in conflicts with ongoing feasibility-level only studies.
<b>SR 303L Connection</b>	No. Although this alternative would enable the City to construct a Parkway as applied under AZA-34177, and it would be in conformance with the purpose of the utility corridors and with the Lower Sonoran RMP, this alternative does not meet the purpose and need of the SVPP because it would provide a freeway connection to I-11 and would not provide an arterial Parkway connection between Goodyear and the SVPA.	Yes, because this alternative would consider the issues that were identified during scoping.	No, because this alternative would involve technical constraints. Technical Considerations: <ul style="list-style-type: none"> <li>SR 303L alignment is currently unknown and unfunded</li> <li>Unknown future Rainbow Valley development</li> </ul>	No, because the SR 303L study is underway and not yet completed by ADOT. Therefore any design and engineering would be speculative. The City is not the responsible agency for SR 303L; ADOT is the responsible agency.	No, because this alternative would rely on feasibility-level only studies and would require speculation for assessing the physical surface disturbances.
<b>Gas Line Road</b>	Yes, because this alternative would enable the City to construct a Parkway as applied under AZA-34177; it would be in conformance with the purpose of the utility corridors and would be in conformance with the Lower Sonoran RMP.	Yes, because this alternative would consider the issues that were identified during scoping.	No, because this alternative would involve technical constraints. Technical Considerations: <ul style="list-style-type: none"> <li>Existing underground utilities</li> <li>Existing ROW permittees</li> <li>Existing ROW stipulations</li> </ul>	No, because the costs of designing, locating, and relocating existing utilities would render this alternative economically infeasible due to the amount of work required to prepare the Gas Line Road for Parkway construction. In addition, the City would be responsible for covering the costs of reissuing existing ROW permits.	Yes, because this alternative would limit all construction to areas that have previously been disturbed.

**Table 2-8. Screening Results: Alternatives Not Considered for Detailed Analysis (Continued)**

Alternative Name	Screening Criteria for Alternatives			
	Consistent with Purpose and Need*	Responds to Public and Agency Scoping	Technically Practical and Feasible	Economically Practical and Feasible
<b>Co-locating SVPP with future planned roads</b>	No. Although this alternative would enable the City to construct a Parkway as applied under AZA-34177, and it would be in conformance with the purpose of the utility corridors and with the Lower Sonoran RMP, this alternative does not meet the purpose and need of the SVPP because it would not provide an arterial Parkway connection between Goodyear and SVPA as the SR 303L and I-11 future planned roads would be freeway connections within a regional and interstate transportation system.	Yes, because this alternative would consider the issues that were identified during scoping such as co-locating or bundling transportation corridors to minimize environmental impacts.	No, because future freeways such as SR 303L and I-11 are in the initial conceptual or feasibility planning stages, and the SVPP is further along in the planning process. Additionally, the Sonoran Valley Parkway is intended to provide a local connection between Goodyear and SVPA while the SR 303L and I-11 are being studied as high-capacity freeway systems (rather than local arterial/Parkway connections).	No. The Sonoran Valley Parkway is a locally funded Parkway, whereas SR 303L is currently unfunded in the MAG Regional Transportation Plan and I-11 is also unfunded and is in the conceptual phases of development, which also includes a study of funding alternatives.
				No. SR 303L currently is in the feasibility stages in which Gila River crossings have not been determined.

**Table 2-8. Screening Results: Alternatives Not Considered for Detailed Analysis (Continued)**

Alternative Name	Screening Criteria for Alternatives				Environmentally Reasonable (Resource Considerations)
	Consistent with Purpose and Need*	Responds to Public and Agency Scoping	Technically Practical and Feasible	Economically Practical and Feasible	
<b>Alternative B</b>	Yes, because this alternative would enable the City to construct a Parkway as applied under AZA-34177, it would be in conformance with the purpose of the utility corridors and would be in conformance with the Lower Sonoran RMP.	Yes, because this alternative would consider the issues that were identified during scoping.	<p>Yes, because this alternative would not involve topographic or engineering constraints.</p> <p>Technical Considerations:</p> <ul style="list-style-type: none"> <li>• Would require new ground disturbance</li> <li>• Near Waterman Wash</li> <li>• Approximately five "curves and/or turns"</li> <li>• Redundant with Alternative C; all resource design elements would be accomplished under Alternative C</li> </ul>	<p>No, because this alternative would be located close to Waterman Wash and would require extensive design features to facilitate surface water, wildlife corridors, flood prevention designs, and engineering constraints. Alternative B is redundant with Alternative C, and all resource design elements would be accomplished under Alternative C.</p> <p>Additionally, Alternative B has multiple substantial curves and turns and would not necessarily provide better management of travel and access despite the extensive design features, resulting in an economically infeasible alternative.</p>	<p>No, because this alternative would result in the greatest impact to the environmental resources of Waterman Wash due to Alternative B "paralleling" Waterman Wash for approximately 8 miles and would not accomplish anything beyond what Alternative C already does.</p> <p>Resource Considerations:</p> <ul style="list-style-type: none"> <li>• Avoids SDNM and gas pipeline corridor</li> <li>• Increases surface disturbance, compared with Alternative A</li> <li>• Increased "curves and turns," compared with Alternative A</li> <li>• Does not necessarily provide better management of travel and access into SDNM since Alternative B would split management apart rather than keeping in same footprint; there would be isolated BLM land between Alternative B and SDNM</li> <li>• Does not cross Waterman Wash but would parallel Waterman Wash to a greater extent than other alternatives (approximately 8 miles) due to the proximity to Waterman Wash</li> </ul>

**Table 2-8. Screening Results: Alternatives Not Considered for Detailed Analysis (Continued)**

Alternative Name	Screening Criteria for Alternatives				Environmentally Reasonable (Resource Considerations)
	Consistent with Purpose and Need*	Responds to Public and Agency Scoping	Technically Practical and Feasible	Economically Practical and Feasible	
<b>Alternative D</b>	Yes, because this alternative would enable the City to construct a Parkway as applied under AZA-34177, it would be in conformance with the purposes of the multiple-use principles of BLM lands and would be in conformance with the Lower Sonoran RMP.	No, because this alternative would not consider all of the public land issues that were identified during scoping since much of this alternative would not be located on BLM lands.	<p>No, because this alternative would include the greatest amount of non-BLM lands and would require extensive acquisition of easements and land.</p> <p>Technical Considerations:</p> <ul style="list-style-type: none"> <li>• Would require new ground disturbance</li> <li>• Would require the most extensive construction since it is the most remote overall length of all action alternatives.</li> <li>• Longest Parkway crosses Waterman Wash at two locations</li> </ul>	<p>No, because this alternative would involve large amounts of new surface disturbance, the longest overall distance to construct, and would require the greatest amount of equipment, supplies, and manpower. In addition, this alternative would include the largest amount of non-BLM lands and would require extensive acquisition of easements and land, thus resulting in economically infeasibility.</p>	<p>No, because this alternative would result in the greatest amount of new surface disturbance and the longest overall distance to construct, resulting in vegetation removal, soil removal, loss of recreation opportunities, loss of forage, and visual contrasts.</p> <p>Resource Considerations:</p> <ul style="list-style-type: none"> <li>• Provides opportunities for improved access to the Estrella Mountains and improved travel and access to the BLM public lands</li> <li>• Removes the sights and sounds of the Parkway because it is farthest from the northern areas of SDNM</li> <li>• Far removed from biological and hydrologic resources of Waterman Wash and its tributaries, except at crossings</li> <li>• Divides the Belbat allotment into small pastures and creates access-to-livestock-waters issues</li> <li>• Creates a separate pasture to the southwest that could be managed for livestock with the installation of a well as mitigation</li> </ul>

**Table 2-8. Screening Results: Alternatives Not Considered for Detailed Analysis (Continued)**

Alternative Name	Screening Criteria for Alternatives			
	Consistent with Purpose and Need*	Responds to Public and Agency Scoping	Technically Practical and Feasible	Economically Practical and Feasible
<b>Alternative E</b>	Yes, because this alternative would enable the City to construct a Parkway as applied under AZA-34177; it would be in conformance with the purpose of the utility corridors and would be in conformance with the Lower Sonoran RMP.	Yes, because this alternative would consider the issues that were identified during scoping.	Yes, because this alternative would involve topographic or engineering constraints. Technical Considerations: <ul style="list-style-type: none"> <li>• Would require new ground disturbance</li> <li>• Fewer "curves and turns" than Alternatives B, C, and D</li> <li>• Near Waterman Wash</li> <li>• Relatively straight alignment</li> <li>• Redundant with Alternative C; all resource design elements would be accomplished under Alternative C</li> </ul>	No, because this alternative would be located close to Waterman Wash and would require extensive design features to facilitate surface water, wildlife corridors, flood prevention designs, and engineering constraints. Alternative E is redundant with Alternative C, and all resource design elements would be accomplished under Alternative C. In addition, this alternative would include the large amounts of non-BLM lands and would require extensive acquisition of easements and land, thus resulting in economically infeasibility.
<b>Environmentally Reasonable (Resource Considerations)</b>	<p>No, because this alternative may result in major impacts to the environmental resources of Waterman Wash and would not accomplish anything beyond what Alternative C already does.</p> <p>Resource Considerations:</p> <ul style="list-style-type: none"> <li>• Avoids SDNM and gas pipeline corridor</li> <li>• Increases surface disturbance</li> <li>• Does not cross Waterman Wash</li> </ul>			
<b>Sub-alternative H1</b>	Yes, because this alternative would enable the City to construct a Parkway as applied under AZA-34177; it would be in conformance with the purpose of the utility corridors and would be in conformance with the Lower Sonoran RMP.	Yes, because this alternative would consider the issues that were identified during scoping.	Yes, because this alternative would involve topographic or engineering constraints. Technical Considerations: <ul style="list-style-type: none"> <li>• Would require new ground disturbance</li> <li>• Near Waterman Wash</li> </ul>	No, because this alternative would be located close to Waterman Wash and would require extensive design features to facilitate surface water, wildlife corridors, flood prevention designs, and engineering constraints. Additionally, this alternative would not necessarily provide better management of resources despite the extensive design features, resulting in an economically infeasible alternative.
<b>Environmentally Reasonable (Resource Considerations)</b>	<p>No, because this alternative would not accomplish anything beyond what Alternative C already does, yet would require more surface disturbance than Alternative C.</p> <p>Resource Consideration:</p> <ul style="list-style-type: none"> <li>• Divides the Beloit allotment into small pastures and creates access-to-livestock-waters issues</li> </ul>			

**Table 2-8. Screening Results: Alternatives Not Considered for Detailed Analysis (Continued)**

Alternative Name	Screening Criteria for Alternatives				Environmentally Reasonable (Resource Considerations)
	Consistent with Purpose and Need*	Responds to Public and Agency Scoping	Technically Practical and Feasible	Economically Practical and Feasible	
<b>Sub-alternative H2</b>	Yes, because this alternative would enable the City to construct a Parkway as applied under AZA-34177, it would be in conformance with the purpose of the utility corridors and would be in conformance with the Lower Sonoran RMP.	Yes, because this alternative would consider the issues that were identified during scoping.	Yes, because this alternative not involve topographic or engineering constraints. Technical Considerations: <ul style="list-style-type: none"> <li>• Would require new ground disturbance</li> <li>• Near Waterman Wash</li> </ul>	No, because this alternative would be close to Waterman Wash and would require extensive design features to facilitate surface water, wildlife corridors, flood prevention designs, and engineering constraints. Additionally, this alternative would not necessarily provide better management of resources despite the extensive design features, resulting in an economically infeasible alternative.	No, because this alternative would not accomplish anything beyond what Alternative C already does, yet would require more surface disturbance than Alternative C. Resource Considerations: <ul style="list-style-type: none"> <li>• Divides the Beloit allotment into small pastures and creates access-to-livestock-waters issues</li> </ul>

## 2.10.2 State Route 303L Connection

A connection to SR 303L was not considered because the exact location of the SR 303L alignment is currently under study and has not been identified by ADOT. As of December 2012, the proposed alignment of SR 303L is undetermined and was eliminated from MAG's Regional Transportation Freeway Program due to lack of funding. As of 2011, ADOT initiated a feasibility study and public involvement process to identify a preferred corridor and river crossing for SR 303L between the future Hassayampa Freeway (I-11) and SR 30.

This alternative has been dismissed from future analysis because connecting the Sonoran Valley Parkway to SR 303L does not meet the proposed purpose and need for the project (see Section 1.2), which is to provide a Parkway from the core areas of the city to the newly annexed areas of the city for current and future residents of the city, as well as for timely emergency services to residents within the new annexation. Planning for the SR 303L is in the early stages, and based on the current funding schedule, it would not meet the project's need. In addition, the SR 303L is planned as a freeway with four general-purpose lanes plus one high-occupancy-vehicle lane in each direction, with the exact traffic interchange location currently unidentified. Thus, the SR 303L, depending on the ultimate location of the freeway and interchange, may not provide a viable transportation alternative for traffic seeking a connection from the City to SVPA. Therefore, this alternative is ineffective.

## 2.10.3 Combining SVPP with Future Planned Roads

AGFD asked that an alternative for SVPP be developed that combines the proposed SVPP with other major transportation projects in the Rainbow Valley area in order to minimize impacts to habitat connectivity. Future transportation projects under consideration in the Rainbow Valley area include SR 303L (south of I-10) and I-11(Hassayampa Freeway). ADOT is currently evaluating the SR 303L; however, the project is in the feasibility planning stages and is currently unfunded. Nevada Department of Transportation and ADOT have begun the 2-year study of I-11 and the Intermountain West Corridor, which is a high-level visioning exercise that will also consider potential funding mechanisms for implementation of the I-11. Both the SR 303L and I-11 projects are currently in the conceptual stages of planning, and unlike the proposed SVPP, no specific ROW or alignments have been identified for analysis. Because of the uncertainty of timing and funding for SR 303L and I-11, an alternative that combines these transportation projects would not be technically or economically feasible.

## 2.10.4 Gas Line Road

An alternative that would use the existing gas pipeline road was suggested by a member of the public during scoping. The Gas Line Road Alternative would consist of upgrading the existing EPNG pipeline maintenance road by regrading and paving the roadway to create a newer, safer road. This alternative was not deemed feasible because of significant safety concerns with ground disturbance and excavation near the existing pipeline. Therefore, this alternative was not carried forward for detailed analysis because of increased risks to public health and safety. Additionally, most resource design elements would be accomplished under Alternative A.

## 2.10.5 Alternative B

Alternative B was developed by the proponent. Alternative B was reviewed by the BLM interdisciplinary team and was subsequently eliminated from detailed analysis. The primary reason for dismissing this alternative from detailed analysis comes from the potential impacts this alignment would have on water



resources, vegetation, riparian areas, and wildlife. Alternative B would require new ground disturbance and is located near Waterman Wash. This alternative would require extensive design features to facilitate surface water, wildlife corridors, flood prevention designs, and engineering constraints. Alternative B is redundant with Alternative C, and all resource design elements would be accomplished under Alternative C. Additionally, Alternative B has multiple substantial curves and turns and would not necessarily provide better management of travel and access to SDNM. In addition to the potential impacts to resources, Alternative B was also eliminated because it would not provide any environmental benefits that are not already included in Alternative C.

## 2.10.6 Alternative D

Alternative D would include the largest amount of non-BLM lands and would require extensive acquisition of easements and land. Alternative D would also have the longest overall distance and would require the greatest amount of equipment, supplies, and construction effort. Because of its length, Alternative D would have the greatest amount of new surface disturbance and the longest overall distance to construct, resulting in vegetation removal, soil removal, loss of recreational opportunities, loss of forage, and increased visual contrast. Alternative D crosses Waterman Wash at two locations. In addition to the economic and technical infeasibility of Alternative D, the potential effects would be substantially similar to Alternative C, yet would not provide additional benefits.

## 2.10.7 Alternative E

Alternative E would be located close to Waterman Wash and would require extensive design features to facilitate surface water, wildlife corridors, flood prevention designs, and engineering constraints. Alternative E would also require new ground disturbance and is redundant with Alternative C. In addition to the potential impacts to riparian, wildlife, and water resources, Alternative E was also eliminated because it would not provide any environmental benefits that are not already included in Alternative C.

## 2.10.8 Sub-alternative H1

Sub-alternative H1 is a sub-alternative that would only apply to the southern portion of the Alternative H alignment. Sub-alternative H1 would begin approximately 5.3 miles north of SR 238 and approximately 1.3 miles east of the Komatke/Gas Pipeline Road. Sub-alternative H1 provides a direct route to privately owned land and would travel along the eastern boundary of the private parcel before rejoining the Komatke Road/Gas Pipeline Road alignment. Sub-alternative H1 was eliminated from detailed analysis because it would be substantially similar in design to Alternative H and would have substantially similar effects as Alternative H.

## 2.10.9 Sub-alternative H2

Sub-alternative H2 is a sub-alternative that would only apply to the southern portion of the Alternative H alignment. Sub-alternative H1 would begin approximately 5.3 miles north of SR 238 and approximately 1.3 miles east of the Komatke/Gas Pipeline Road. Sub-alternative H2 would traverse an existing unnamed road to the 115th Avenue alignment, where it would then turn south to privately owned land and would travel along the eastern boundary of the private parcel before rejoining the Komatke Road/Gas Pipeline Road alignment. Sub-alternative H2 differs from Sub-alternative H1 because Sub-alternative H2 would include less surface disturbance by following existing roadways rather than cutting across undeveloped BLM land. Sub-alternative H2 was eliminated from detailed analysis because it would be substantially similar in design to Alternative H and would have substantially similar effects as Alternative H.

## 2.11 SUMMARY OF EFFECTS

Table 2-9 presents a summary comparison of resources potentially affected by each alternative. The information presented in this table is a summary comparison of the data presented in detail in Chapters 3 and 4 of this EIS. The effects identified in this table also assume that applicant-committed BMPs and mitigation measures will have been implemented. The comparison of effects also includes effects that are common to all action alternatives to demonstrate the relative effect of each alternative.

Table 2-9. Summary of Effects

Resource Section	No Action	Alternative A (the BLM Preferred Alternative)	Alternative C	Alternative H	Sub-alternative F	Sub-alternative G (the BLM Preferred Sub-alternative)
AIR RESOURCES						
	No change to existing conditions anticipated.	Anticipated to meet the stated goals and objectives of the City General Plan Amendment (City 2007), the MAG Regional Transportation Plan (MAG 2003), and the State Implementation Plan via federal statute (40 CFR 51). Construction activity may generate a temporary increase in Mobile Source Air Toxics (MSAT) emissions. The impact for potentially sensitive receptors would be long-term but negligible. The operation of Alternative A, C, or H and Sub-alternative F or G may result in indirect air quality impacts to existing and planned receptors if the Parkway creates land use amendments brought on by development interest. Future development would increase the proximity of the improved roadway network to existing and planned receptors in the project area, creating the potential for increases in local CO and PM <sub>10</sub> concentrations.				
CULTURAL AND HERITAGE RESOURCES						
	No change to existing conditions anticipated.	<p>Under Alternative A, the BLM Preferred Alternative, up to 220.1 acres (permanent) and 39.4 acres (temporary) would be disturbed during the construction of the SVPP. Alternative A would directly and indirectly impact the three known historic properties (Lung Homestead, AZ T:15:94[ASM], and the Butterfield Overland Stage Route), as well as the Juan Bautista de Anza NHT corridor and Management Area.</p> <p>Measures for mitigating the adverse effects to the Lung Homestead, AZ T:15:94(ASM), and the Butterfield Overland Stage Route may include such options as data recovery, artifact analysis, archival research, interpretative signage, Parkway crossovers, and vehicle parking for trail access; measures for the adverse effects to the Juan Bautista de Anza NHT corridor may include interpretative signage, Parkway crossovers, and vehicle parking for trail access.</p>	<p>Under Alternative C, up to 254.5 acres would be disturbed by the construction of the SVPP. There would be no impacts to AZ T:15:94(ASM). Direct and indirect impacts to the Lung Homestead, the Butterfield Overland Stage Route, and the Juan Bautista de Anza NHT corridor and Management Area would be the same as those described under Alternative A, because Alternative C shares the same corridor through those resources.</p>	<p>Under Alternative H, ground disturbance (permanent and temporary) from the Phase Three six-lane Parkway would total 437.2 acres. Direct and indirect impacts for the six-lane Parkway to the Lung Homestead, the Butterfield Overland Stage Route, and the Juan Bautista de Anza NHT corridor and Management Area would be the same as those described under Alternative A because Alternative C shares the same corridor through those resources.</p>	<p>Under Sub-alternative F, total ground disturbance would be 106 acres (96.8 acres permanent and 9.2 acres temporary). Sub-alternative F was designed to avoid impacts to the Lung Homestead and consists of 2.8 miles diverting around the site; therefore, there are no impacts to the Lung Homestead. Sub-alternative F would also not impact AZ T:15:94(ASM); however, both the Butterfield Overland Stage Route and the Juan Bautista de Anza NHT corridor and Management Area would be impacted by Sub-alternative F.</p>	<p>Under Sub-alternative G (the BLM Preferred Sub-alternative), up to 79.2 acres (72.0 acres permanent and 7.2 acres temporary) would be disturbed. Like Sub-alternative F, Sub-alternative G was designed to avoid impacts to the Lung Homestead and consists of 2.4 miles diverting around the site; therefore, there are no impacts to the Lung Homestead. Like Sub-alternative F, Sub-alternative G would also not impact AZ T:15:94(ASM); however, both the Butterfield Overland Stage Route and the Juan Bautista de Anza NHT corridor and Management Area would be impacted by Sub-alternative G.</p>
PALEONTOLOGICAL RESOURCES						
	No change to existing conditions anticipated.	As stated in Section 3.4, the entire analysis area has a Potential Fossil Yield Classification (PFYC) rating of 2. This rating suggests that the geologic units present in the analysis area are unlikely to contain vertebrate fossils or scientifically significant nonvertebrate fossils. A PFYC 2 does not require construction monitoring due to the low probability of encountering fossils. Because the low PFYC rating of the analysis area means that the presence of paleontological resources is unlikely, there would be no anticipated direct or indirect impacts to paleontological resources associated with construction of the SVPP under any alternative and regardless of the number of lanes constructed.				

Table 2-9. Summary of Effects (Continued)

Resource Section	No Action	Alternative A (the BLM Preferred Alternative)	Alternative C	Alternative H	Sub-alternative F	Sub-alternative G (the BLM Preferred Sub-alternative)
SOIL RESOURCES						
	No change to existing conditions anticipated.	Direct or indirect impacts to the general topography of the project area, such as elevation and overall slope, would not occur under any variant of the project alternatives. The project area does not cross hills that would need to be cut or graded down, or valleys that would need to be filled. Microtopography would necessarily be altered within the project area, to build the road bed, provide fill for culvert and wildlife crossings, and maintain consistent grades. Similarly, construction and operation of the project would not directly or indirectly affect local geology and geologic events under any variant of the project alternatives. Under Alternative A, short-term disturbance would occur along a 15.7-mile corridor, and would total 39.4 acres. Short-term disturbance would result in a conversion from natural soils (as well as dirt roads and a small amount of farmland) to a graded and otherwise disturbed construction corridor. Direct impacts would result from clearing of vegetation, grading, and compaction. Much of the area disturbed during construction would be reclaimed, resulting in long-term impacts to a corridor between 44 and 116 feet wide (depending on the phase) comprising paved Parkway and graded median and shoulders within a 250-foot-wide ROW. Impacts would result from the clearing of vegetation, grading, compaction, and from construction of the Parkway. Long-term impacts to soils would include the loss of soil productivity within the transportation corridor due to preclusion of access to the soil.	Qualitatively, the short-term and permanent, direct and indirect impacts to soils under Alternative C would be substantially the same as described under Alternative A. However, at 18.1 miles in length, the corridor of Alternative C is approximately 15% longer than that of Alternative A and the area of soil disturbed would be commensurately larger.	Qualitatively, the short-term and permanent, direct and indirect impacts to soils under Alternative H would be substantially the same as described under Alternative A. At 18.3 miles in length, the corridor of Alternative H is approximately the same length as that of Alternative C, but is 16% longer than that of Alternative A. The area of soil disturbed would be commensurately larger.	Qualitatively, the short-term and permanent, direct and indirect impacts to natural soils under Sub-alternative F would be substantially the same as the segment it would replace. However, at 2.8 miles in length (versus 2.4 miles for the segment it would replace), the corridor of Sub-alternative F is approximately 16% longer and the area of soil disturbed thus commensurately larger. The impact would occur wholly on private lands.	Qualitatively, Sub-alternative G's short-term and permanent, direct and indirect impacts to natural soils would be substantially the same as the segment it would replace. However, at 2.4 miles in length (versus 2.4 miles for the segment it would replace), the corridor of Sub-alternative G is approximately the same and the area of soil disturbed thus the same. The impact would occur wholly on private lands.
VEGETATION RESOURCES						
	No change to existing conditions anticipated.	The impact would include 474.3 acres of vegetation removal, including 467.6 acres of Lower Colorado River Valley Sonoran Desertscrub and 6.7 acres of xeroriparian vegetation community types. The impacts to ANPL-protected plant species from the implementation of Alternative A would include 474.3 acres of vegetation removal, which could affect individuals and/or their habitat. The impact to vegetation communities along the perimeter of the project area due to the increased chance of noxious and invasive plant species introduction and establishment from the implementation of Alternative A is quantified as the 474.8-acre ROW perimeter.	The impacts would include 546.1 acres of vegetation removal, including 539.7 acres of Lower Colorado River Valley Sonoran Desertscrub and 6.4 acres of xeroriparian vegetation community types. The impacts to ANPL-protected plant species from the implementation of Alternative C would include 546.1 acres of vegetation removal, which could affect individuals and/or their habitat. The impact to vegetation communities along the perimeter of the project area due to the increased chance of noxious and invasive plant species introduction and establishment is quantified as the 548.5-acre ROW perimeter.	The impacts would include 550.0 acres of vegetation removal, including 541.9 acres of Lower Colorado River Valley Sonoran Desertscrub and 8.1 acres of xeroriparian vegetation community types. The impacts to ANPL-protected plant species from the implementation of Alternative H would include 550.0 acres of vegetation removal, which could affect individuals and/or their habitat. The impact to vegetation communities along the perimeter of the project area due to the increased chance of noxious and invasive plant species introduction and establishment is quantified as the 553.9-acre ROW perimeter.	The impacts would include 96.4 acres of vegetation removal, including 95.4 acres of Lower Colorado River Valley Sonoran Desertscrub and 1.0 acre of xeroriparian vegetation community types. The impacts to ANPL-protected plant species from the implementation of Sub-alternative F would include 96.4 acres of vegetation removal, which could affect individuals and/or their habitat. The impact to vegetation communities along the perimeter of the project area due to the increased chance of noxious and invasive plant species introduction and establishment is quantified as the 96.8-acre ROW perimeter.	The impacts would include 71.8 acres of vegetation removal, including 71.3 acres of Lower Colorado River Valley Sonoran Desertscrub and 0.6 acre of xeroriparian vegetation community types. The impacts to ANPL-protected plant species from the implementation of Sub-alternative would include 71.8 acres of vegetation removal, which could affect individuals and/or their habitat. The impact to vegetation communities along the perimeter of the project area due to the increased chance of noxious and invasive plant species introduction and establishment is quantified as the 72.0-acre ROW perimeter.

Table 2-9. Summary of Effects (Continued)

Resource Section	No Action	Alternative A (the BLM Preferred Alternative)	Alternative C	Alternative H	Sub-alternative F	Sub-alternative G (the BLM Preferred Sub-alternative)
VISUAL RESOURCES						
	No change to existing conditions anticipated.	The addition of this alternative to the landscape in Rainbow Valley would result in an alteration of the existing landscape which would be visible from spots within the SDNM to the west. Alternative A would be visible from selected KOPs in the Rainbow Valley and contrasts to the existing view in Rainbow Valley of the surrounding landscape from the area residents, users of adjacent public land, and SR 238 would be created. The level of change to the characteristic landscape would be consistent with the objectives of VRM Class IV objectives for the 284.6 acres of BLM land within the project area.	The addition of this alternative to the landscape in Rainbow Valley would result in an alteration of the existing landscape which would be visible from spots within the Rainbow Valley. Alternative C would be visible from selected KOPs in the Rainbow Valley. Visual contrasts to the existing view in Rainbow Valley of the surrounding landscape from the area residents, users of adjacent public land, and SR 238 would be created. The level of change to the characteristic landscape would be consistent with the objectives of VRM Class IV objectives for the 319.4 acres of BLM land within the project area.	The addition of this alternative to the landscape in Rainbow Valley would result in an alteration of the existing landscape which would be visible from spots within the Rainbow Valley. Alternative H would be visible from selected KOPs in the Rainbow Valley. Visual contrasts to the existing view in Rainbow Valley of the surrounding landscape from the area residents, users of adjacent public land, and SR 238 would be created. The level of change to the characteristic landscape would be consistent with the objectives of VRM Class IV objectives for the 308.1 acres of BLM land within the project area.	The addition of this alternative to the landscape in Rainbow Valley would result in an alteration of the existing landscape which would be visible from viewpoints within the Rainbow Valley. Sub-alternative F would be visible from three KOPs in the Rainbow Valley (i.e., the town of Mobile, Juan Bautista de Anza National Historic Trail, and Sierra Estrella's Quartz Peak). Visual contrasts to the existing view in Rainbow Valley of the surrounding landscape from the area residents, users of adjacent public land, and SR 238 would be created. Sub-alternative F is located entirely outside of BLM lands.	The addition of this alternative to the landscape in Rainbow Valley would result in an alteration of the existing landscape which would be visible from viewpoints within the Rainbow Valley. Visibility of Sub-alternative G would be evident from three KOPs in the Rainbow Valley (i.e., the town of Mobile, Juan Bautista de Anza National Historic Trail, and Sierra Estrella's Quartz Peak). Visual contrasts to the existing view in Rainbow Valley of the surrounding landscape from the area residents, users of adjacent public land, and SR 238 would be created. Sub-alternative G is located entirely outside of BLM lands.
WATER RESOURCES						
	No change to existing conditions anticipated.	A total of 39 wash crossings would be constructed for Alternative A, resulting in a total of 2.5 acres of temporary and/or permanent impact to washes that could possibly be jurisdictional. This constitutes 0.5% of the total project area and less than 0.0009% of the total Waterman Wash watershed. There are 25 acres of floodplains that would be temporarily and/or permanently impacted under Alternative A as a result of the installation of culverts and low-water crossings. The water demand for the SVPP ranges from 3.0 to 3.5 acre-feet per year, which is 0.04% or less of the estimated recharge for the sub-basin. Because total water demands for SVPP are very minimal and because the Rainbow Valley sub-basin has recently experienced a decline in groundwater pumping and rise in water levels, impacts to groundwater quantity are considered negligible under all alternatives and sub-alternatives.	Alternative C will require construction of the most wash crossings, with a total of 44 resulting in direct impacts of 3.3 acres of temporary and/or permanent impact to washes that could possibly be jurisdictional and 44.2 acres of impacts to floodplains. This constitutes 0.6% of the total project area and less than 0.001% of the total Waterman Wash watershed.	The type and magnitude of direct impacts to surface water for Alternative H are the same as for Alternative A, with slight differences in total impacts. A total of 4.2 acres of temporary and/or permanent impacts to washes would occur that could possibly be jurisdictional. This constitutes 0.8% of the total project area and less than 0.002% of the total Waterman Wash watershed. There are 50.0 acres of floodplains that would be temporarily and/or permanently impacted under Alternative H.	A total of 0.8 acre of temporary and/or permanent impact to washes that could possibly be jurisdictional would occur. This constitutes 0.8% of the total project area and less than 0.0003% of the total Waterman Wash watershed. There are 22.4 acres of floodplains that would be temporarily and/or permanently impacted under Sub-alternative F.	A total of 0.2 acre of temporary and/or permanent impact to washes that could possibly be jurisdictional would occur. This constitutes 0.3% of the total project area and less than 0.0001% of the total Waterman Wash watershed. There are no impacts to floodplains under Sub-alternative G.
WILDLAND FIRE						
	No change to existing conditions anticipated.	The removal of this vegetation during clearing activities would lower the fuel load further within the ROW of the alternative alignments; however, the removal of trees and shrubs (fuel load) would likely increase the amount of herbaceous (grasses and forbs) fuel loads. The potential for an increase in herbaceous fuel load directly adjacent to the proposed Parkway would be further increased due to water infiltration and ponding next to the impenetrable (i.e., pavement or asphalt) surfaces. Therefore, there would be a direct impact to the fuel loads within the analysis area by the vegetation clearing. The impact would be temporary during the construction of the Parkway before landscaping activities return the vegetation levels in the non-Parkway areas of the ROW to near-existing conditions. An increase in the number of lanes (from two to four or six) would decrease the amount of land within the ROW that would be available to landscape and subsequently revegetate. An increase in traffic would lead to an increase of human presence within the analysis area; however, only vehicle travel would be permitted within the ROW and there would be an anticipated increase in the continuity of herbaceous fuel loads. When combined with the anticipated increase in human presence, the existing ignition risk would increase. The Parkway would increase access and decrease response times to fires, should they occur, and therefore represent a beneficial impact to the risk of wildland fires starting and spreading to adjacent lands. The Proposed Action and action alternatives would not impact the BLM's current fuel and fire management Allocation 2 area classification for the lands within and immediately adjacent to the ROW.				

Table 2-9. Summary of Effects (Continued)

Resource Section	No Action	Alternative A (the BLM Preferred Alternative)	Alternative C	Alternative H	Sub-alternative F	Sub-alternative G (the BLM Preferred Sub-alternative)
WILDLIFE AND SPECIAL-STATUS SPECIES						
	No change to existing conditions anticipated.	The impacts to general wildlife species from the implementation of Alternative A would include approximately 474.2 acres of general wildlife species habitat out of the 78,249 acres total of general wildlife habitat within the analysis area. The impacts to special-status wildlife species from the implementation of Alternative A would include 474.2 acres of habitat for special-status wildlife out of the 78,249 acres of habitat for special-status wildlife within the analysis area, including approximately 467.6 acres of LCRV vegetation out of the 70,355 acres total of LCRV vegetation within the analysis area, approximately 6.7 acres of xeroriparian vegetation out of the 872 acres total of xeroriparian vegetation within the analysis area, and approximately 82.5 acres of BLM-designated Category I Sonoran desert tortoise habitat out of the 560 acres total of Category I Sonoran desert tortoise habitat within the analysis area. The impacts to general wildlife would include approximately 308.1 acres of wildlife movement corridors out of the 14,833 acres total of wildlife movement corridors within the analysis area and impacts to species along the entire 15.7-mile roadway.	The impacts to general wildlife species from the implementation of Alternative C would include approximately 546.1 acres of general wildlife species habitat out of the 78,249 acres total of general wildlife habitat within the analysis area. The impacts to special-status wildlife species from the implementation of Alternative C would include 546.1 acres of habitat for special-status wildlife out of the 78,249 acres of habitat for special-status wildlife within the analysis area, including approximately 539.7 acres of LCRV vegetation out of the 70,355 acres total of LCRV vegetation within the analysis area, approximately 6.4 acres of xeroriparian vegetation out of the 872 acres total of xeroriparian vegetation within the analysis area, and approximately 25.9 acres of BLM-designated Category I Sonoran desert tortoise habitat out of the 560 acres total of Category I Sonoran desert tortoise habitat within the analysis area. The impacts to general wildlife species from the implementation of Alternative C would include approximately 377.9 acres of wildlife movement corridors out of the 14,833 acres total of wildlife movement corridors within the analysis area and impacts to species along the entire 18.1-mile roadway.	The impacts to general wildlife species from the implementation of Alternative H would include approximately 550.0 acres of general wildlife species habitat out of the 78,249 acres total of general wildlife habitat within the analysis area. The impacts to special-status wildlife species from the implementation of Alternative H would include 550.0 acres of habitat for special-status wildlife out of the 78,249 acres of habitat for special-status wildlife within the analysis area, including approximately 541.9 acres of LCRV vegetation out of the 70,355 acres total of LCRV vegetation within the analysis area, approximately 8.1 acres of xeroriparian vegetation out of the 872 acres total of xeroriparian vegetation within the analysis area, and approximately 82.0 acres of BLM-designated Category I Sonoran desert tortoise habitat out of the 560 acres total of Category I Sonoran desert tortoise habitat within the analysis area. The impacts to general wildlife species from the implementation of Alternative H would include approximately 343.6 acres of wildlife movement corridors out of the 14,833 acres total of wildlife movement corridors within the analysis area and impacts to species along the entire 18.3-mile roadway.	The impacts to general wildlife species from the implementation of Sub-alternative F would include approximately 96.4 acres of general wildlife species habitat. The impacts to special-status wildlife species from the implementation of Sub-alternative F would include 96.4 acres of habitat for special-status wildlife out of the 78,249 acres of habitat for special-status wildlife within the analysis area, including approximately 95.4 acres of LCRV vegetation out of the 70,355 acres total of LCRV vegetation within the analysis area, approximately 1.0 acre of xeroriparian vegetation out of the 872 acres total of xeroriparian vegetation within the analysis area, and approximately 10.8 acres of BLM-designated Category I Sonoran desert tortoise habitat out of the 560 acres total of Category I Sonoran desert tortoise habitat within the analysis area. The impacts to general wildlife species from the implementation of Sub-alternative F would include 55.2 acres of wildlife movement corridors out of the 14,833 acres total of wildlife movement corridors within the analysis area and impacts to species along the entire 2.8-mile roadway.	The impacts to general wildlife species from the implementation of Sub-alternative G would include approximately 71.8 acres of general wildlife species habitat. The impacts to special-status wildlife species from the implementation of Sub-alternative G would include 71.8 acres of habitat for special-status wildlife out of the 78,249 acres of habitat for special-status wildlife within the analysis area, including approximately 71.3 acres of LCRV vegetation out of the 70,355 acres total of LCRV vegetation within the analysis area and approximately 0.6 acre of xeroriparian vegetation out of the 872 acres total of xeroriparian vegetation within the analysis area (there is no BLM-designated Category I Sonoran desert tortoise habitat in this sub-alternative). The impacts to general wildlife species from the implementation of Sub-alternative G would include 47.3 acres of wildlife movement corridors out of the 14,833 acres total of wildlife movement corridors within the analysis area and impacts to species along the entire 2.4-mile roadway.
LANDS AND REALTY						
	No change to existing conditions anticipated.	No anticipated impacts to electrical transmission or oil/gas pipeline existing land use authorizations. Loss of approximately 475 acres of outdoor recreation opportunity. Direct loss to 20 and 33 acres to the Beloat and Conley allotments. No impact to mineral entry, commercial or industrial land uses, or airports. May indirectly increase development potential of Rainbow Valley through infrastructure improvements that would enable further development.	No anticipated impacts to electrical transmission or oil/gas pipeline existing land use authorizations. Loss of approximately 549 acres of outdoor recreation opportunity. Direct loss to 48 and 13 acres to the Beloat and Conley allotments, respectively. No impact to mineral entry, commercial or industrial land uses, or airports. May indirectly increase development potential of Rainbow Valley through infrastructure improvements that would enable further development.	No anticipated impacts to electrical transmission or oil/gas pipeline existing land use authorizations. Loss of approximately 554 acres of outdoor recreation opportunity. Direct loss to 43 and 20 acres to the Beloat and Conley allotments, respectively. No impact to mineral entry, commercial or industrial land uses, or airports. May indirectly increase development potential of Rainbow Valley through infrastructure improvements that would enable further development.	No anticipated impacts to electrical transmission or oil/gas pipeline existing land use authorizations. Loss of approximately 97 acres of outdoor recreation opportunity. Direct loss to 11 acres to the Conley allotment. Sub-alternative F would pass directly through the Butterfield Station Landfill, an active municipal solid waste landfill, and would require major mitigations to relocate approximately 5 acres of occupied landfill. No impact to mineral entry or airports. May indirectly increase development potential of Rainbow Valley through infrastructure improvements that would enable further development.	No anticipated impacts to electrical transmission or oil/gas pipeline existing land use authorizations. Loss of approximately 72 acres of outdoor recreation opportunity. Direct loss to 8 acres to the Conley allotment. No impact to mineral entry, commercial or industrial land uses, or airports. May indirectly increase development potential of Rainbow Valley through infrastructure improvements that would enable further development.

Table 2-9. Summary of Effects (Continued)

Resource Section	No Action	Alternative A (the BLM Preferred Alternative)	Alternative C	Alternative H	Sub-alternative F	Sub-alternative G (the BLM Preferred Sub-alternative)
LIVESTOCK GRAZING						
	No change to existing conditions anticipated.	Implementation of Alternative A would reduce the amount of acres of forage available for livestock grazing. Specifically, 33.2 acres (0.002% of the total allotment acreage of 174,080 acres) of the Beloat allotment would be removed from livestock grazing use for the life of the SVPP. Twenty acres of the Conley allotment (0.002% of the total allotment acreage of 116,234 acres) would also be removed from livestock grazing use for the life of the SVPP. The proposed alignment of the action alternatives and sub-alternatives are not expected to affect current fencing alignment within either of the grazing allotments; however, if the roadway alignment goes through a fence, BLM and Goodyear will work with the grazing allottee to determine methods to minimize impacts to the allotment. Though existing fencing alignments are not anticipated to change, the addition of the ROW fencing will effectuate new fencing alignments on both sides of the ROW.	The operational footprint of Alternative C would be 61.4 acres, which is 8.2 acres more than Alternative A. Alternative C would reduce acres available for grazing by 48.1 acres (0.002%) and 13.3 acres (0.001%) in the Beloat allotment and Conley allotments, respectively. Unmitigated, BLM lands available for grazing included in the Conley allotment west of the Alternative C alignment would be lost (approximately 712 acres), since the Alternative C alignment would sever the existing pasture at this location. Since there are no existing livestock waters in this area, the pasture could not be used for forage. This represents less than 1% of the total BLM lands within the Conley allotment (91,018 acres). The loss of forage would be a long-term, adverse impact.	The operational footprint of Alternative H would be 62.1 acres, which is 8.9 acres more than Alternative A. Alternative H would reduce acres available for grazing by 42.5 acres (0.002%) and 19.6 acres (0.001%) in the Beloat allotment and Conley allotments, respectively.	The operational footprint of Sub-alternative F would be 10.8 acres, wholly in the Conley allotment. This represents a reduction 0.001% of grazing land in the Conley allotment. Unmitigated, BLM lands available for grazing included in the Conley allotment west of the sub-alternative F alignment would be lost (approximately 320 acres), since the Sub-alternative F alignment would sever the existing pasture at this location. Since there are no existing livestock waters in this area, the pasture could not be used for forage. This represents less than 0.5% of the total BLM lands within the Conley allotment (91,018 acres). The loss of forage would be a long-term, adverse impact.	The operational footprint of Sub-alternative G would be 8.5 acres. This represents a reduction of 8.1 acres (0.001%) in the Conley allotment. Unmitigated, BLM lands available for grazing included in the Conley allotment west of the sub-alternative G alignment would be lost (approximately 320 acres), since the Sub-alternative G alignment would sever the existing pasture at this location. Since there are no existing livestock waters in this area, the pasture could not be used for forage. This represents less than 0.5% of the total BLM lands within the Conley allotment (91,018 acres). The loss of forage would be a long-term, adverse impact.
RECREATION MANAGEMENT						
	No change to existing conditions anticipated.	Under Alternative A, approximately 475 acres would be lost to accommodate the construction, operation, and maintenance of the SVPP. This would reduce the size of lands available for dispersed recreation (public lands not designated as RMAs) by 0.02%.	Under Alternative C, approximately 545 acres of BLM land would be lost to accommodate the construction, operation, and maintenance of the SVPP. This would reduce the size of lands available for dispersed recreation (public lands not designated as RMAs) by 0.02%.	Under Alternative H, approximately 684 acres would be lost to accommodate the construction, operation, and maintenance of the SVPP. This would reduce the size of lands available for dispersed recreation (public lands not designated as RMAs) by 0.02%.	Under Sub-alternative F, approximately 148 acres of BLM land would be lost to accommodate the construction, operation, and maintenance of the SVPP. This would reduce the size of lands available for dispersed recreation (public lands not designated as RMAs) by less than 0.01%.	Under Sub-alternative G, approximately 110 acres would be lost to accommodate the construction, operation, and maintenance of the SVPP. This would reduce the size of lands available for dispersed recreation (public lands not designated as RMAs) by less than 0.01%.

Table 2-9. Summary of Effects (Continued)

Resource Section	No Action	Alternative A (the BLM Preferred Alternative)	Alternative C	Alternative H	Sub-alternative F	Sub-alternative G (the BLM Preferred Sub-alternative)
TRAVEL MANAGEMENT						
	No change to existing conditions anticipated. Motorists would be required to travel on dirt roads to access portions of the City's MPA.	During construction, traffic volume would increase along SR 238. At the peak of construction, construction-related vehicles would be commuting to and from the project area on a daily basis, and additional construction trucks per day would be making trips to and from the site. Once in operation, the proposed Parkway under Alternative A may continue to impact traffic volume on SR 238, because it is expected to increase from existing conditions as a result of greater access to the highway from the proposed Parkway. Approximately 2.5 miles of Maricopa County roads would be upgraded for use for Alternative A, as it would start at Riggs Road and head south along Rainbow Valley Road. Under this alternative, parts of Rainbow Valley Road also would be upgraded for use in the Parkway. Once the proposed Parkway is in operation under Alternative A, the use of these roads would provide beneficial long-term impacts to motorists and residents in the area as access to and from Rainbow Valley would be greatly improved during operation. The Alternative A alignment would provide mechanisms for BLM to control illegal OHV driving into the SDNM from the Parkway, primarily through the construction and maintenance of ROW fencing. Because Alternative A would parallel the EPNG pipeline maintenance road for approximately 10.4 miles, during operation, motorists would be less likely to continue using the unpaved utility road. There may be construction-related traffic delays, particularly on sparsely used BLM roads that provide legal access to the SDNM; however these would be short-term.	Under Alternative C, impacts to SR 238 would be the same as Alternative A. Alternative C would have the greatest impact on county roads as approximately 8.8 miles of county roads would be converted to Parkway under this alternative, including parts of Rainbow Valley and Patterson Roads, and Bullard Avenue. Construction of Alternative C may have adverse short-term impacts on residents living along Patterson Road due to construction-related traffic delays. However, access to these roads would be maintained at all times. During operation, the use of county roads would provide long-term benefits to residents as emergency response vehicles and utility-related traffic would have better access to this area. Under Alternative C, a total of 18.1 miles of the proposed Parkway would be located on BLM-administered lands (comprising 548.5 acres within the 250-foot-wide ROW, with 319.4 acres being BLM-administered, and 1.4 acres in a temporary construction easement). This would amount to an increase of 34.8 acres on BLM lands from Alternative A. Alternative C would not follow existing utility company roads. There may be construction-related traffic delays, particularly on sparsely used BLM roads that provide legal access to the Sierra Estrella Wilderness; however the impact would be short-term.	Under Alternative H, impacts to SR 238 would be the same as under Alternatives A and C. Under the Alternative H scenario, approximately 5.5 miles of county roads would be impacted (Patterson Road). Construction of Alternative H may have adverse short-term impacts on residents living along Patterson Road due to construction-related traffic delays. However, access to these roads would be maintained at all times. During operation, the use of county roads would provide long-term benefits to residents as emergency response vehicles and utility-related traffic would have better access to this area. Alternative H would not follow existing utility company roads. Under Alternative H, impacts to access from construction and operation would be the same as Alternative C.	Under Sub-alternative F, impacts to SR 238 would be the same as Alternative A. Sub-alternative F is located entirely on vacant private land and follows the existing EPNG pipeline road to its southern terminus at SR 238. Sub-alternative F is approximately 2.8 miles long. Construction of Sub-alternative F will likely result in few construction- or operation-related impacts because the alignment is located within an existing, unpaved access road ROW. Sub-alternative F does not include BLM land or BLM roads within the 250-foot-wide ROW. Sub-alternative F follows the existing unpaved EPNG pipeline maintenance road at its northernmost point to its terminus at SR 238. Sub-alternative F measures 2.8 miles, starting at the EPNG pipeline road at its north end, and then running south along this alignment to make its final connection with SR 238. Under Sub-alternative F, impacts on highway and road usage from construction and operation would be negligible, as no other existing roads or corridors are crossed. Under Sub-alternative F, impacts to access from construction and operation would be improved, since only limited access currently exists in this area.	Under Sub-alternative G, impacts to SR 238 would be the same as Alternative A. Sub-alternative G is located predominantly on vacant private land and follows about 0.5 mile of the existing 107th Avenue alignment to its southern terminus at SR 238. Sub-alternative G is approximately 2.4 miles long and does not cross BLM land. Construction of Sub-alternative G will likely result in few construction- or operation-related impacts as the alignment is located mostly on vacant lands. During operation, the use of 107th Avenue would be maintained. Sub-alternative G, totaling 2.4 miles of the proposed Parkway, would comprise 72 acres of private land within the 250-foot-wide ROW. One unpaved BLM road, the Butterfield Overland Stage Route would be intersected by Sub-alternative G. Existing legal public access would be retained. Sub-alternative G connects with the existing unpaved EPNG pipeline maintenance road at its northern terminus. Other than this intersection, Sub-alternative G will not follow existing utility company roads. Under Sub-alternative G, impacts to access from construction and operation would be improved, since currently no access exists in this area.



Table 2-9. Summary of Effects (Continued)

Resource Section	No Action	Alternative A (the BLM Preferred Alternative)	Alternative C	Alternative H	Sub-alternative F	Sub-alternative G (the BLM Preferred Sub-alternative)
SPECIAL DESIGNATIONS						
	No change to existing conditions anticipated.	<p>Conversion of the existing landscape from a natural setting to a high-contrast transportation corridor would have long-term adverse impacts to recreation opportunities and users of the adjacent areas of the SDNM. The impact would be limited to the areas of SDNM immediately adjacent to the alternative alignment, where the sights and sounds of the alternative alignment would change the existing viewshed and affect the solitude of SDNM.</p> <p>The North and South Maricopa Mountain Wilderness would experience the same impacts as described above for SDNM, under all action alternatives, since the wilderness areas would experience the same indirect impacts to the viewsheds and recreational settings and desired experiences that would indirectly impact SDNM. Because the Sierra Estrella Wilderness is 10 miles to the east of the proposed SVPP, this distance would reduce the effects of the view, and it is expected that the proposed Parkway would not stand out from the existing development in the area. Topography would also mitigate or eliminate (block) these effects in portions of the adjacent and nearby wilderness areas. The construction and operation of the SVPP under all action alternatives would create noise. The increase in construction-related noise would be noticeable from the northern and easternmost reaches of the North Maricopa Wilderness; however, the sound would quickly fade as visitors venture further into the wilderness. The color contrast the alternative alignments would impose upon the landscape during construction, operation, and maintenance would be highly noticeable throughout the day and the same throughout the year. Depending upon the engineering designs, the lights required for the SVPP at night would be noticeable. This would have an adverse impact on the recreation setting and experience of SDNM immediately adjacent to the alternative alignments and from mountain peaks with expansive vistas, because all action alternatives would alter the view of Rainbow Valley from a mostly natural, rural setting to a more developed rural setting. Under all action alternatives, there would be an increase of traffic in the local area during the construction and operation of the SVPP. Traffic would come primarily from Rainbow Valley Road and SR 238. This increase in traffic would cause both short-term and long-term adverse impacts to SDNM wildlife because of vehicle strikes and barriers to movement. Traffic would increase the risk of wildlife mortality and would contribute to the fragmentation of wildlife populations. There would also be adverse impacts to the recreational setting and experience due to the increase in traffic.</p> <p>Under all action alternatives and sub-alternatives, the proposed SVPP 250-foot ROW would intersect the Lower Gila Terraces and Historic Trails ACEC for an approximate distance of between 2.0 and 2.7 miles (between approximately 61 and 82 acres). The areas of the ACEC in which the proposed SVPP 250-foot ROW would intersect currently include existing dirt roads, transmission lines, and gas pipelines. The overall values for which the 82,500-acre ACEC were designated (cultural, archaeological, and Historic Trails) would not be lost if the SVPP were implemented; however, the conversion of the ACEC from the existing uses (including but not limited to dispersed recreation and livestock grazing) to a Parkway would adversely impact these values on between approximately 61 and 82 acres of the ACEC, less than approximately 0.1% of the entire ACEC.</p>				
NOISE						
	No change to existing conditions anticipated.	<p>The closest residential unit to Alternative A is approximately 2,800 feet, and the closest school is approximately 2,400 feet. The noise levels at 2,400 and 2,800 feet are anticipated to be less than 64 dBA for all Parkway designs (two-, four-, and six-lane). Due to the distance of potentially sensitive receptors from the roadway, it is anticipated that the increase in noise levels from existing noise levels is less than 15 dBA. The impact on noise levels for potentially sensitive receptors would therefore be long-term but negligible.</p> <p>The operation of Alternative A may result in indirect impacts to Category B land uses (residential) if the Parkway creates land use amendments brought on by development interest. Future development would increase the proximity of Category B land uses to the improved roadway network in the project area.</p>	<p>The impacts to existing Category B land uses under Alternative C would be the same as described for Alternative A for all Parkway designs (two-, four- and six-lane) except for a residential unit that would be approximately at the ROW. The noise level is anticipated to exceed 64 dBA, with a greater than 15 dBA noise level increase from existing noise levels, for this residential unit. The implementation of Alternative C would therefore result in long-term, adverse impact to noise levels for potentially sensitive receptors located along the ROW, and long-term, negligible impact to noise levels for potentially sensitive receptors not located along the ROW.</p> <p>As with Alternative A, the future development from the operation of Alternative C would increase the proximity of receptors to the improved roadway network in the project area, resulting in indirect impacts to planned Category B land uses.</p>	<p>The impacts to existing Category B land uses under Alternative H would be the same as described for Alternatives A and C for all Parkway designs (two-, four- and six-lane) except for residences located approximately at the ROW. The noise level is anticipated to exceed 64 dBA, with a greater than 15 dBA noise level increase from existing levels, for these residential units. The implementation of Alternative H would therefore result in long-term, adverse impact to noise levels for potentially sensitive receptors located along the ROW, and long-term, negligible impact to noise levels for potentially sensitive receptors not located along the ROW.</p> <p>Alternative H's indirect impacts from future land uses would be the same as described for Alternatives A and C.</p>	<p>The closest residential unit to Sub-alternative F is located approximately at the ROW. Therefore, under all Parkway designs (two-, four-, and six-lane), the noise level is anticipated to exceed 64 dBA with a greater than 15 dBA noise level increase from background for this residential unit. Sub-alternative F would also move the Parkway to a distance of approximately 1,400 feet from the school. However, the noise level from the Parkway at this distance is still anticipated to be less than 64 dBA for the school, with a less than 15 dBA noise level increase from existing levels. The implementation of Sub-alternative F would therefore result in long-term, adverse impact to noise levels for potentially sensitive receptors located along the ROW, and long-term, negligible impact to noise levels for potentially sensitive receptors not located along the ROW.</p> <p>Sub-alternative F's indirect impacts from future land uses would be the same as described for Alternatives A, C, and H.</p>	<p>The closest residential unit to Sub-alternative G, the BLM Preferred Sub-alternative, is approximately 7,500 feet, and the closest school is approximately 6,000 feet. Based on these assumptions, the noise levels at these distances are anticipated to be less than 64 dBA for all Parkway designs (two-, four-, and six-lane). Due to the distance of potentially sensitive receptors from the Parkway, it is anticipated that the increase in noise levels from existing noise levels would be less than 15 dBA. The impact on noise levels for potentially sensitive receptors would therefore be long-term but negligible.</p> <p>Sub-alternative G's indirect impacts from future land uses would be the same as described for Alternatives A, C, and H and Sub-alternative F.</p>

Table 2-9. Summary of Effects (Continued)

Resource Section	No Action	Alternative A (the BLM Preferred Alternative)	Alternative C	Alternative H	Sub-alternative F	Sub-alternative G (the BLM Preferred Sub-alternative)
HAZARDOUS MATERIALS/PUBLIC SAFETY						
	No change to existing conditions anticipated. The City would not have safe access to its MPA.	With adherence to LORS and the applicant-committed environmental protection measures described in Chapter 2, implementation of the SWPPP and SPP, and potentially the additional mitigation described in Section 4.17.3 for the Hamilton Homes and RM Cat Remediation sites, the construction and operation of Alternative A would not result in direct or indirect impacts from hazardous materials to surrounding soils, surface water, or groundwater.  It is likely that more hazardous materials would be used and stored, and used and stored for longer periods of time, during construction of wider Parkways. Thus it follows that construction of a four-lane Parkway would likely use and store more hazardous materials, for a longer period of time, than a two-lane Parkway, and the same applies for a six-lane Parkway over a four-lane Parkway. However, for the reasons stated in the previous paragraph, direct or indirect impacts from hazardous materials within the project area are not anticipated for any of the phases under this Alternative.	Alternative C's direct and indirect impacts from the use of hazardous materials and the generation of solid waste would be the same as described under Alternative A, except as described below.  Because Alternative C is approximately 15% longer than Alternative A, construction activities would likely consume a comparably higher amount of hazardous materials and would generate a comparably higher amount of solid waste. The quantity of hazardous materials on the project area at a given time would likely be the same as for Alternative A, but would remain on-site for a longer period of time because construction would likely take longer.	Alternative H's direct and indirect impacts from the use of hazardous materials and the generation of solid waste would be the same as described under Alternative A, except as described below.  Because Alternative H is approximately 16% longer than Alternative A, construction activities would likely consume a comparably higher amount of hazardous materials and would generate a comparably higher amount of solid waste. The quantity of hazardous materials on the project area at a given time would likely be the same as for Alternative A, but would remain on-site for a longer period of time because construction would likely take longer.	Sub-alternative F's direct and indirect impacts from the use of hazardous materials and the generation of solid waste would be the same as described under Alternative A, except as described below.  While this Sub-alternative avoids the RM Cat Remediation site, and is the shortest and most direct route, it passes directly through the Butterfield Station Landfill, an active municipal solid waste landfill operated by Waste Management, Inc. Beyond the obvious logistical concerns of relocating over 5 acres of existing landfill contents to construct a Parkway, significant and costly additional mitigation measures would be required, such as extensively sampling the waste for contaminants, proper removal and disposal of the waste elsewhere, and re-engineering of existing landfill liner systems and leachate and methane collection systems. Direct impacts would include exposing potentially hazardous waste materials to the environment, and exposing personnel to the potentially hazardous waste materials. Existing landfill liners in the area would be removed, and could compromise adjacent liner material in the process. Landfills generally have setback requirements from public Parkways, and special variances from various state and federal agencies may be needed. Indirect impacts at the landfill could also include temporary disruption of existing leachate and methane collection systems, which could put the environment and personnel at risk.	Sub-alternative G's direct and indirect impacts from the use of hazardous materials and the generation of solid waste would be the same as described under Alternative A, except that this Sub-alternative avoids both the RM Cat Remediation site and the Butterfield Station Landfill.
SOCIAL AND ECONOMIC CONDITIONS						
	No change to existing conditions anticipated. Motorists would be required to travel on dirt roads to access portions of the City's MPA.	Under all action alternatives, project construction would occur on a phased schedule over the course of several years for each phase (the exact construction schedule has yet to be determined; each phase would add two additional through-lanes). The staffing for project construction would be expected to draw from the existing construction workforce in the region, including metropolitan Phoenix. Because of the availability of construction workers within the metropolitan Phoenix area, construction workers would commute to the SVPP from their local residences rather than relocate. The proposed project would provide income to construction workers, therefore impacts to income will be beneficial and short-term. The timeframe for construction of the proposed Parkway is currently unknown and will be dependent upon future transportation funding availability.  Though direct and indirect economic impacts to income are largely unquantifiable, from a qualitative perspective, the operation of a new Parkway where one did not exist previously will provide access to new areas for residential and commercial development, thus providing more potential opportunities for income generation. Given the relatively small number of construction workers needed to build this 15.7-mile Parkway, cost of living is not expected to be affected. Because the construction workers are anticipated to commute rather than relocate to the project area, the proposed project is not expected to have any effect on property tax. In the long-term, increased access to the Rainbow Valley area may promote additional visitors and travelers to the area, thus increasing sales and lodging tax revenue. Additional improvement to the housing market in general is expected, and the addition of a Parkway for access to Rainbow Valley will likely improve the appeal of this area for prospective investors and residents, thus providing a long-term benefit for housing and property values. Changes to recreation-driven economic revenue would not occur as a result of the construction and operation of the Parkway, as no fee-generating activities (e.g., hunting, enthusiast events, etc.) occur in the Rainbow Valley area. Each alternative presented for the SVPP would change or reconfigure the livestock grazing allotment boundaries. Reconfiguring livestock grazing allotment boundaries would impact the livestock movement patterns, the allotment permittee, and the BLM. Reconfiguring livestock grazing boundaries may sever the ability for livestock to move in and out of the existing pasture in site-specific locations (as analyzed in Section 4.12, Livestock Grazing), require new grazing improvement construction, render grazing improvements unusable, and may decrease available acreage for grazing, which could decrease the AUMs and subsequent value of the allotment.  In the long term, development of commercial and industrial centers are planned for Rainbow Valley, and so the Parkway would indirectly benefit employment conditions because it would provide improved access from residences to employment centers. The identified environmental justice communities are a minimum of 2 miles from the proposed Parkway, further reducing the chances of disproportionate impacts. It was also determined that the introduction of a Parkway on other environmental resources that could negatively affect environmental justice communities (such as air quality, noise, health and human safety, and visual resources) would also not result in a disproportionate or adverse impact on the environmental justice communities, since these impacts would largely be minor. The addition of a Parkway or transportation access that can also support public transportation would be a beneficial impact to environmental justice communities as currently no, or limited access exists in this area, and public transit provides a mobility option for those who do not own a vehicle.  Changes to quality of life would be impacted by the construction and operation of the Parkway, and in some cases, the development of this transportation corridor would improve the quality of life for some local populations depending on destination and objective. Contrarily, for those seeking a rural and semiprimitive experience, the addition of urbanized features such as a Parkway, accompanied by increased traffic volume (i.e., the two-lane Parkway scenario would allow capacity of approximately 24,000 vehicles per day; four lanes would accommodate 48,000 vehicles per day; and six lanes would accommodate 72,000 vehicles per day) would deteriorate elements that define their quality of life.				